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ANNUAL MEDICAL PROGRESS NUMBER.

A REVIEW OF THE MEDICAL LITERATURE OF 1905.

EDITORIAL COMMENT.

A PLEDGE AND A PROPHECY.

It has become a pleasant custom for the January number of the *INTERSTATE* to contain an informal announcement to its readers of the purpose of this review number. To them thus taken into the editorial confidence, is explained why it is that these reviews have a meaning quite beyond the material facts and comments upon them, which they contain. Perhaps it may seem that no such purpose really exists but that one is put there to form the subject of this writing. Even were this true the fact remains that in such work as this there can be found some appeal to the imagination quite apart from the array of prosaic facts which is recorded.

It may be of interest to point out briefly some of the ways in which medicine seems to be advancing and to interpret with the subtle wisdom that is supposed to lie behind editorial expression, some of the currents by which this progress is to be measured. In this way a kind of review will be given but in this instance no names will be quoted, no bibliography be appended and no authority will lie back of what is expressed. For this reason perhaps what is here said may have the interest which so often attaches to the unknown and to the unauthoritative.

Rare indeed is the kind of mind which can understand the current of things in which that mind is playing its part. Frequently there is a certain unwareness of what the present is, and too often in retrospect is found that which in the actual happening might have been of surpassing interest. If one were gifted with the power not only of living but of seeing some of the present movements in medicine they would furnish a bit of medical history worth while contemplating.

The three important forces in organized medicine to-day may be broadly said to be the medical school, the medical society and the medical journal. It is only by one of these, or by a combination of them that medical opinion can become focused and effective. The evolution in

medical schools has often been pointed out and its slow change has taken place almost unknown to us. From the commercial to the university school is a long step, but more important even than this is the acceptance on the part of the medical profession of this truth. In creating a university spirit in the teaching of medicine there follows as a matter of fact a desire, unexpressed as such, for something of the same standard in the other affairs of medicine. The first to show the effects of this desire is the medical society and in spite of the insistence of this demand there are those who are blind to it, and who see in its expression only the carping criticism of the discontented. It is true that writing or talking of the desired changes are not effective means of bringing them about but beneath there lies the sense of dissatisfaction of which it is well to be aware.

To an inquiring mind of the future the most amazing thing of the present day medicine will perhaps be the multiplicity of medical journals. No profession has anything like as many and no profession perhaps is less in need of so many. If the need on the part of the reader is not insistent and if the necessity on the part of the writer is not so determined, why is the number more than any real necessity demands. To provide that which is not wanted, desired or needed is certainly a waste and at this material time waste becomes an economic crime.

The answer to this is that there is a profit in medical journalism and a profit not depending upon the number of readers but upon the amount of advertising that can be crowded into a given space. Now the change that is actually happening under our eyes is that this space often unimportant for any medical purpose, is to be much curtailed, cut down until the more sturdy of the brotherhood can subsist in its narrow quarters. The standard will become established and those not able to live up to it will gradually lose their importance and in their places will be the others who can. This then is to be the real beginning of what has so often been wished for, the establishment of a real medical journalism and together with this will develop the proper means of giving expression to medical thought in its relation to the civic aspects of medicine. The opinion of a journal has no particular weight at present and it will not have until something of this sort takes place.

That we are living at the time that these changes are taking place ought to be a fortunate thing. If we are able to see the thing happening and to understand the little changes taking place from day to day, we shall learn to mix a little philosophy with everyday affairs. That the INTERSTATE is aware in some measure of these things is a pledge of its sincerity to assist in their final accomplishment. Its purpose will be to interpret as far as wisdom is given to it the little currents setting in towards the larger stream which in time will change the aspect of that which in its structure is not good. In this January number with the literature of a year's effort in its pages the INTERSTATE feels that it can speak with sincerity.

ORIGINAL ARTICLES.

INTERNAL MEDICINE.

IN CHARGE OF

JESSE S. MYER, M. D.

This review will be devoted entirely to a consideration of some of the recent literature on diseases of the stomach. There is certainly no subject in medical literature that has received more painstaking, mature thought from the standpoint of physiology, pathology, medical aspects and surgical. Though there are many problems which have not reached a definite solution, great strides have been made toward clearing them up. It is useless to expect, of course, that definite conclusions can be reached with reference to the treatment of diseases of an organ until the physiology of that organ has been reduced to a definite science. This we cannot say of the physiology of the gastro-intestinal tract. Many of our best authorities are still at variance with reference to certain physiological phases. That is, probably due to the fact that the stomach more than any other organ in the body accommodates itself to circumstances, to habits of eating, character of food taken, etc., and for this reason it may never be possible to clear up all of the physiological problems which arise in connection with the stomach and intestines. The evolutionist maintains, and properly so, that the functions of the stomach have varied with the evolution of the animal from the lower to the higher forms, according to the character of food obtainable, etc. Even in human beings there is a marked degree of variation in the gastric secretions depending upon the habits and characteristics of the individuals. It is readily understood, therefore, that in dealing with the material at hand in large institutions, a momentary change in the diet and habits of individuals will not bring about the same conditions in the secretory and motor functions of all, when the previous habits of the individuals have been entirely different. It is probably for this reason that certain discrepancies arise in the results obtained by different investigators working along same lines upon apparently a similar material. In spite of these difficulties, however, the treatment of stomach troubles is being based more and more upon the physiology of that organ, a knowledge of dietetics, etc., etc. The terms indigestion and dyspepsia are becoming things of the past, conveying nothing to the mind of the thinking physician because he is well aware that they are merely expressions of a symptom of one

of a large number of affections. There is no organ in the body which requires more careful investigation than does the stomach in the effort to arrive at a definite diagnosis. The number of symptoms directly referable to the stomach are very few in number, and any or all of them may occur in each of the different diseases of the organ. Indeed, patients manifesting identically the same symptoms may have entirely different pathological conditions. It is necessary therefore, in every case in which there is the least doubt as to the existing conditions, to make a careful determination of the gastric secretions and gastric motility.

There is certainly no subject in medical literature which has received greater attention than has that of ulcer of the stomach, and while no epoch-making results have been attained in the past year, many links have been added to the chain that will make ultimately for the perfection both of the diagnosis and treatment of this unusually interesting condition. Ulcer of the stomach, since the time of Cruveilhier, has received an unusual degree of thought because of the uncertainty of its pathogenesis, and even today we are not altogether clear upon this point.

Block¹ attributes the fact that round ulcer of the stomach is found more frequently on the lesser curvature of the stomach than at the pylorus, to anatomical relations which he has observed in stomachs fixed and examined immediately after death. These portions of the stomach have the same appearance in the dilated as in the contracted state, while the muscles of the other portion contract firmly and thus protect its mucous membrane from the action of the gastric juice. In the muscles of the newborn dying from gastro-enteritis are found ulcers which have originated from hemorrhagic erosions, and the epithelium seems to be seriously damaged through hemorrhages to the mucous membrane. He believes that bacteria do not play any role in the production of ulcer.

Ackerman² considers trauma and chronic pressure an important factor in the origin of ulcer of the stomach and cites a number of cases in support of his belief.

Fertig³ has added a valuable contribution to the subject of the traumatic origin of ulcer in a case in which he was able to demonstrate absolutely the connection between the injury and the development of the ulcer. As a rule we must rely entirely upon the history which we elicit from the patient for our association of trauma and ulcer. In this particular case a laparotomy was made following a kick in the abdomen but the exploration revealed nothing. A few days later, however, hemorrhages from the stomach occurred, the patient died and the autopsy revealed four gastric ulcers.

Payer⁴ has also added to the literature on the etiology of ulcer of the stomach. He succeeded in producing experimentally erosions, infarcts and hemorrhages in the stomach through the introduction of emboli into the omental and mesenteric veins. These experiments together with a number of clinical observations lead him to the belief that there is a relationship between appendicitis and the secondary gastric disturbances which follow. He calls attention to the colics, pain, vomiting, etc., which so often occur after the first attack of appendicitis, and believes that in many cases these symptoms are indicative of ulcer of the stomach, in fact, he was able to demonstrate frequently small fissures and ulcers in the region of the pylorus in these conditions. He attributes this to emboli resulting from thrombi in the veins. These emboli may come from the omentum, from the appendix or from the mesentery. Strange to say the removal of the appendix suffices to produce a cure of the gastric symptoms. Though his experimental work is conclusive, this last statement seems to disprove rather than to prove his belief, for it seems very improbable that even though the ulcer may have had its origin from emboli coming from the appendix, that the removal of the appendix should in any way influence the ulcer thus formed.

Wegele⁵ points out the difficulties of diagnosis and mentions among those conditions with which it may be confounded, neuroses, gall stones, cholecystitis, etc., etc. After reviewing the points of diagnosis he lays great stress upon the anesthetic action of orthoform in these conditions. He maintains that the pain produced by loss of tissue in the stomach is promptly relieved by orthoform administered internally. On the other hand, if on an empty stomach a patient is given nitrate of silver in the presence of an ulcer a burning sensation will be produced. If patients are accustomed to the use of the stomach tube, a 20 per cent solution of the chloride of iron may be used in order to determine whether or not the burning sensation is produced thereby. Another important diagnostic aid is the determination of traces of blood in the stomach contents by the aid of the microscope, the guaiac-turpentine test, or any of the other exact methods.

Hewes⁶ reports excellent results in what he sees fit to term laboratory diagnosis of gastric ulcer. In one hundred and sixty cases of stomach trouble the diagnosis of ulcer was made in 12 cases and was demonstrated to be correct in eleven. He points out the advantages of careful laboratory methods in the examination of this condition.

Clemm⁷ lays the greatest stress upon the pain in gastric ulcer and believes that the periodical paroxysms dependent upon the ingestion of food usually immediately after eating, sometimes during the process but most often within a half to two hours afterward, are indicative

of the presence of an ulcer. The author presents in this little work a most exhaustive consideration of the subject of ulcer of the stomach in all its phases.

In the physical diagnosis of ulcer of the stomach, pain and hemorrhage still remain the chief factors. The location of the pain seems to have but little significance, however, in locating the ulcer, for the pain is not necessarily over the lesion. Many ulcers exist for a long period of time without producing any pain, and pain exists frequently in the epigastrium due to other causes than ulcers. Though an important factor in the diagnosis pain in the epigastrium may not be considered a pathognomonic sign of ulcer, as some believe.

Riedel⁸ attributes pain in the epigastrium to one of three causes, (1) reflex, (2) transmitted from neighboring organs, (3) ulcer of the stomach. Among the reflex causes may be mentioned acute and chronic appendicitis, epigastric hernia, scars of old ulcers, disturbances in the transverse colon, appendices, epiplocae, etc. Among the pains transmitted from neighboring organs may be mentioned gall stones and all of its allied conditions, movable right kidney, ulcer of the duodenum, etc. In all of these cases the transmitted pains in contradistinction to the reflex pains are on the right side. In ulcer, depending upon the location, the pain may be on the right or left side or in the middle line. Riedel believes that the left-sided pain rather points to the existence of ulcer, while the right may be transmitted from other organs, and believes, therefore, that in the interest of an early diagnosis the left-sided epigastric pain cannot be valued too highly.

Pitt⁹ reports 17 cases of ulcer of the stomach in which the original symptoms did not point to the primary disease, in other words, the symptoms were not associated with the organ involved. In seven cases there was ascites, in three intestinal adhesions, in two occlusions of the bowels and in two pus in the abdomen, in two a high degree of anemia and in one a tumor in the right ileo-cecal region which was taken for a tumor of the ovary.

Mouthin¹⁰ attributes the pains of gastric ulcer to the sensory nerves in the parietal peritoneum, or in the subserous tissues. Every movement of the stomach for this reason produces pain, and for this reason, too, those ulcers furthest removed from the parietal peritoneum, namely those of the anterior wall of the stomach produce the least pain. The fact that the lymph vessels of the gastric walls extend to the parietal peritoneum causes it to be all the more sensitive.

Riegel has stated that the diagnosis of ulcer in the absence of any hemorrhage from the stomach, was always a problematic diagnosis (*Eine Warscheinlichkeitsdiagnose*). However, it does not follow that

hemorrhage occurs in every case of ulcer of the stomach, and inasmuch as this is true, there would necessarily be a great many cases of ulcer of the stomach in which we could not make a definite diagnosis.

Connell¹¹ suggests the title "hemorrhagica gastrica" for all hemorrhages from the stomach, whatever may be their cause and suggests this in view of the fact that there is a hematemesis and expulsion of blood from the rectum without a preceding gastric hemorrhage, and on the other hand, gastric hemorrhages, without these manifestations. He considers the passage of blood from the bowel of little diagnostic significance so far as the stomach is concerned. Hematemesis is here the important factor and may vary from occult hemorrhages to severe, acute forms.

Haim¹² studied 80 cases of perforating ulcers, 8 of which were under his own observation and 72 described in the literature. The symptoms were always spontaneous pain at a circumscribed point, sensitiveness to pressure, vomiting, shock and collapse. Then follows the quiescent period, during which stage the examination reveals nothing. The prognosis depends entirely on the promptness of surgical interference.

Croce¹³ describes similar cases and maintains that a cure can only be effected when the patient is operated upon within twelve to twenty-four hours.

Lund¹⁴ reports several cases of subacute perforation and presents a careful review of the literature, in which Brinton claims that a large majority of ulcers are on the anterior wall and the lesser curvature while Lindner and Pariser claim that 95 per cent are on the posterior wall. The severity of the symptoms depend upon the size of the perforation. Such perforations have been spontaneously closed by adhesions with the omentum.

Scudder²⁵ reports cases of perforated duodenal and gastric ulcers which have come under his observation and believes that it is possible to differentiate between them if one sees the patient immediately after the first peritonitic symptoms. He reviews carefully the symptomatology and recommends, of course, immediate operation. He suggests that gastro-enterostomy be done in these cases as soon afterwards as the general condition of the patient will permit it.

Sears¹⁵ reports the results of the medical treatment of peptic ulcer at the Boston Hospital. He found that in 2,100 autopsies 29 cases of ulcer were found. In one of the Boston hospitals there were 104 cases treated in ten years, in another 184 cases in 29 years. In following the cases treated he found a recurrence in about 60 per cent.

Francine¹⁶ investigated the incidents of gastric and duodenal ulcer in Philadelphia and concludes that the autopsy shows a far

greater percentage of ulcer than clinical observation. According to Howard ulcer is found both clinically and anatomically less often in America than in Europe and in the north and eastern part of America oftener than in the south. Among the causes of ulcer he enumerates anemia, hyperchlorhydria, sedentary habits, injury, chlorosis and menstrual disturbances, emboli and thrombi, burns, nephritis and tuberculosis. He believes that the last two are the causes of most of the chronic ulcers. According to Biernacki the gastric secretions are decreased in nephritis and as a result of this fact organic changes take place. The author reports forty-two cases of ulcer in 2800 autopsies in a period of ten years, 17 of these cases were in chronic nephritis, 12 in tuberculosis.

Wirsing¹⁷ reports his observations in 320 cases of ulcer of the stomach, and considers at length the etiology and diagnosis of the condition. His statistics show a marked discrepancy in the number of permanent and temporary cures, which he explains through the tendency of ulcers to recur. The very nature of the treatment for ulcer predisposes one to a recurrence. The resistance of the patient is naturally lowered through starvation. The author tested in forty-two cases the method of Lenhartz, which consists in giving the patient a rich albuminous diet throughout, beginning with two raw eggs and 200 ccm. of milk gradually increased to eight eggs and a litre of milk per day. The results of this method were far better than those of the Leube-Zeimssen method both with reference to temporary and permanent results.

In the medical treatment of gastric ulcer but little that is new has been presented. There is some difference of opinion as to what is meant by rest in the treatment of this condition, namely, whether the stomach should be put at absolute rest through withholding all food by the mouth and resorting entirely to nutrient enemata, or whether it is better to give these patients small and frequent quantities of easily digested food such as milk and eggs. The best results seem to be attained by giving the patients small quantities of milk and eggs from the very start providing no recent hemorrhage has occurred. The results of Greenough and Joslin seem to have been borne out by recent investigations. They found at that time that 32 per cent. of those who received no food by the mouth were cured, i. e., left the hospital free from symptoms, in contrast to 44 per cent. of cures in those patients who were given small quantities of milk and lime water from the outset.

Reichmann¹⁸ calls attention to two disturbances which often accompany the starvation treatment of peptic ulcer of the stomach. One of these complications is rapid loss of strength in the early part of the

treatment. This is often so marked that it leads to fainting attacks, disturbance in the heart's action, palpitation, dyspnoea, etc. When this train of symptoms arises it becomes necessary to abandon this treatment and resort to some other. This complication is most apt to occur in neurasthenic individuals. The second complication which the author has observed is the development of inflammatory processes in the parotid gland, with pus formation and all of its consequences. He has met with but three of these cases in twelve years' experience but attributes this to prophylactic treatment which he has adopted in these cases. Though no bacteriological examinations were made, he attributes this phenomenon to the accumulation of pus producing bacteria in the mouth, due to the absence of those motions which cleanse the mouth when eating and the diminution of the salivary secretions. One of these factors, mechanical and the other physiological are in a measure dispensed with in those taking the starvation treatment, and bacteria are thus permitted to accumulate in the mouth. The author for the past few years has avoided this unpleasant complication through the frequent cleansing of the mouth, teeth, gums, etc., with a 4 per cent. boric acid solution, and since adopting these measures has not met with a single case. In spite of these unpleasant occurrences, however, the author still highly recommends the starvation diet in the treatment of peptic ulcer of the stomach.

Shattuck¹⁹ adheres very strongly to the medical treatment of ulcer, in which he recommends small amounts of liquids after three or four days of exclusive rectal feeding. He believes that cicatricial contraction at or near the pylorus causing dilatation, and perforation are the only features of peptic ulcer which seem to clearly demand surgical treatment in the present state of our knowledge.

It is doubtful if any absolute rule should be laid down in the feeding of ulcer cases, for experience teaches that different cases respond differently. There are those cases in which pain is persistent and improvement retarded by the ingestion of any food whatsoever, while there are others that bear liquid diet well at all times. There is no doubt, however, that all things being taken into consideration, feeding is the logical procedure in a large majority of cases.

It scarcely seems in place to discuss under the head of internal medicine, the surgical aspects of the treatment of ulcer. However, since the internist first comes in contact with these cases, it is necessary that he should have a very definite knowledge of the surgical indications. Regardless of what the future may bring forth, ulcer of the stomach is today in a large measure a surgical disease, and though we all agree that a very painstaking effort should be made to bring about a cure through medical treatment, we must also concede that if we

fail, or if there are frequent recurrences of the symptoms, an operation should be resorted to. Mumford²⁰ and Stone, the one a surgeon, the other an internist, have presented a most admirable work on the surgical aspects of digestive disorders. They say in their argument, "we can not say of disease of the bile passages and of gastric ulcer what has come to be said of appendicitis, that they are purely surgical diseases, but we believe we can show that in many instances they are so, and we insist that in all prolonged or severe disorders of such nature, the views of a properly qualified surgeon should be sought. In other words, such diseases have passed out of the hands of the internist acting alone. He must share with the surgeon the responsibility and share it early." Through considering the diseases of the stomach "from different, but not opposing points of view" they have succeeded in presenting a most impartial review and consideration of this subject.

McCasky²¹ believes that stomach troubles which do not clear up in six weeks call for a careful, skillful examination, the determination of the secretion and the motility of the stomach. If after careful treatment improvement does not follow, sooner or later an exploratory operation should be done. We believe that this is a bit far fetched, for there are a number of conditions, among which might be mentioned chronic gastritis, which might persist under the most careful treatment and in which an exploratory operation would reveal nothing and surgical therapeutics would avail nothing. McCasky bases this statement upon the belief that the mortality in exploratory laparotomy would be less than in the possible overlooking of incipient carcinoma, ulcer, etc. He does not consider the loss of weight the first symptom of either ulcer or carcinoma. If there is no pyloric stenosis a patient with either may even gain weight. Value is to be attached only to a combination of symptoms observed by an experienced diagnostician. In reviewing the literature he finds that gastrectomy gives a mortality of 30 per cent, according to Haberkant of 27 per cent. This must be considered, therefore, a dangerous procedure, and for this reason he recommends that the diagnosis should be made by the family physician before such a serious operation becomes necessary.

Sears¹⁵ also points out the importance of the physician becoming skillful in the examination of gastric diseases, and believes that through the prompt operation, in cases of ulcer, there may be avoided cancerous degeneration, perforation, scar formation, etc. He does concede, however, that even in some of the operative cases recurrences occur, especially in the jejunum. He states, too, that cures have not been effected in all of the operated cases. Hemorrhage, on account of the difficulty of locating it, must be treated internally. Rodman had

a mortality of 37 per cent. when operating for hemorrhage. Robson, 60 per cent. Moynihan points out the usefulness of attempting to remove the ulcer for hemorrhage and recommends a simple anastomosis. The statistics which he was able to collect with reference to the formation of carcinoma on the basis of an ulcer are varied. Kollman found but fourteen authentic cases while Mayo believes that 60 per cent. of his cases of malignant disease are due to ulcer. Sears concludes that (1) the failure of internal treatment calls for surgical interference, (2) the dangers are not increased thereby, since the mortality is not greater in the end, than in internal treatment, (3) the results must not be based on statistics of the immediate results obtained but upon the end results, (4) the surgical treatment of hemorrhage is of doubtful value, (5) in doubtful cases there should be a very definite understanding between physician and surgeon.

Mayo²² has done gastroenterostomy 230 times for ulcer and found 60 of these in the duodenum alone. He believes that neither post mortem examination or clinical studies have given the correct idea of the frequency of these lesions. He states that nothing is to be expected from operation upon nervous individuals with gastric neuroses and almost equally little from operation upon those who are the subject of a chronic dilatation merely. Patients who have actual mechanical hindrance to the passage of food through the pylorus are those who profit most by surgical interference. He does not operate in the case of an acute ulcer unless a complication such as perforation, hemorrhage, etc., call for surgical interference.

Mayo-Robson²³ claims a cure of 92 per cent in the surgical treatment of chronic ulcer of the stomach. In the entire list of his operations the mortality has been but 3.7 per cent. He has made a careful study of the remote results of his operations and firmly believes in the efficacy of this treatment.

Tiegel²⁴ reports a number of cases of ulcer of the jejunum following gastroenterostomy. The author had met with five such cases and had collected sixteen from the literature. It is very difficult to make an exact diagnosis of this condition but we are most likely to have to do with a jejunal ulcer if acute, perforative symptoms present themselves after gastro-enterostomy.

Bettman²⁵ is somewhat skeptical with reference to the modern trend of gastric surgery and expresses the fear that it will be greatly abused. After carefully summing up the literature on the subject his conclusions are (1) in America about 1 per cent. of the population present a gastric ulcer or scar in the autopsy room. Clinically not more than .2 per cent. of all patients suffer from gastric ulcer. (2) Under appropriate treatment the severer complications of gastric

ulcer can be largely prevented. (3) The mortality from gastric ulcer is grossly exaggerated in surgical literature and under proper medical treatment does not exceed four per cent. in all classes of private patients. (4). The American surgical literature on gastric ulcer abounds in exaggerations, crudeness and recklessness. (5). That gastric ulcer predisposes to gastric cancer to any marked degree is improbable, that the majority of cancers are preceded by ulcer is certainly untrue, that gastro-enterostomy would prevent such metamorphosis has not been demonstrated. (6) Gastro-enterostomy has a certain mortality. It often fails to relieve gastric disorders due to ulcer. It should be followed by careful dietetic treatment, and it may lead to fatal complications, irrespective of the primary disease. (7) Pyloric obstruction is not in itself an indication for surgical interference. Many cases recover under medical treatment. (8) Our patients will be best served if they submit to proper medical treatment and seek surgical advice only at the suggestion of their medical attendant.

The other extreme is represented by Haggard²⁷, who has performed gastro-enterostomy in patients with persistent gastralgia even in the absence of any other symptom.

The above quotations simply go to show the present state of indecision among surgeons and internists as to the surgical interference and the medical treatment of ulcer. That there is a marked degree of recklessness evinced among surgeons with reference to this disease there can be no doubt, and there is great danger of gastric surgery being greatly abused if indeed we may not say that such has already been the case. When one considers the difficulties of differentiating ulcer from gastric neuroses, gall stones, adhesions, etc., and on the other hand views the unconcerned manner in which certain surgeons make diagnosis of gastric ulcer and resort at once to gastro-enterostomy, cannot help being somewhat skeptical with reference to the modern trend of gastric surgery. The difficulties attending the diagnosis of gastric disturbances should make one all the more reluctant in recommending operation until through all the means in his power he has reached as definite a diagnosis as possible. Careful observation for a prolonged period of time is often necessary in reaching a diagnosis, and yet we find a patient going to the hospital one day and after a mere, and often careless, taking of the history, he is operated upon the following day. That gastro-enterostomy is to be recommended in many cases of ulcer, there can now be no doubt, but not, however, until every effort has been made to bring about a cure through medical means. Only the future can tell how much good and how much harm is being done by the surgeons in these cases. The tendency is as yet too young and statistics too meager to permit of definite conclusions.

It is safe to prophesy, however, that gastric surgery will reach its proper level just as has the surgery of the pelvic organs.

Pyloric stenosis in infants presents one of the most fertile fields for investigation among gastric diseases. The condition has received a marked degree of attention within the past year both on the part of pediatricists and internists. Still,²⁸ on the basis of 20 cases, gives an interesting description of the so-called hypertrophic-pyloric stenosis with a careful consideration of the diagnosis and treatment. The chief symptoms are the persistent vomiting, and visible and palpable peristalsis of the stomach, and a palpable thickening of the pylorus. Male children are much more frequently affected than females, of these 20 cases 17 were boys. The term congenital is hardly applicable to the condition inasmuch as it rarely exists at birth, or at any rate does not manifest itself then. The symptoms usually begin to manifest themselves about the end of the fourth week. The author warns against making a diagnosis from the vomiting alone in the absence of the visible peristaltic movements of the stomach. There are several methods of treatment among which may be mentioned regulation of the diet alone, nasal feeding, lavage, and surgical interference. In the author's opinion lavage seems to offer the best results. He recommends operation only after all other efforts have failed.

Wachenheim²⁹ collected 67 cases of pyloric stenosis in the literature and recites a case in which in the fifth week after birth vomiting and constipation began. There were neither tumor nor peristalsis visible. The autopsy, however, revealed a large, thick muscular ring about the pylorus almost of the consistency of cartilage.

Schmidt³⁰ observed two cases. He believes that most of these cases have an anatomical basis and are only improved by surgical interference. Cases of pure pyloric spasm are very rare. These as well as the relative organic stenosis with compensatory hypertrophy present a grateful field for internal therapy.

Torkel³¹ made a careful histologic investigation in a case of congenital hypertrophy of the stomach and finds that it is due chiefly to an acute hyperplasia of the muscle. In these hyperplastic muscles there may be small cell enclosures that point to embryonic origin and are proof that these changes are truly of congenital developmental origin.

Ibrahim³² presents a most exhaustive review of this subject with a presentation of seven cases under his own observation. He believes that the condition is an anatomical stenosis which is cured through a compensatory hypertrophy of the stomach. The condition must be differentiated from atresia of the pylorus, congenital tumors of the pylorus, stenoses due to scar, intestinal stenoses and atresias and the ar-

terio-mesenteric intestinal obstruction at the duodeno-jejunal boundary, and pure pyloric spasm.

Binet³³ presents a very important contribution on the influence of alkalis upon the functions of the stomach. Sodium bicarbonate, calcium phosphate and magnesium increase through stimulation the gastric secretion. This action continues up to the point of saturation of the hydrochloric acid in all three cases but in different degrees. This action is slight after sodium bicarbonate but very marked after magnesium. Sodium bicarbonate also stimulates the motility of the stomach through the liberation of carbon dioxide. It acts upon the sensibility only when the pain develops a long time after eating. And such pains do not always point to hyperacidity. Strange to say often when the pain is greatest the stomach either contains no free hydrochloric acid, or less than one finds in a test meal which has caused no pain. These pains, therefore, are dispelled more promptly by sodium bicarbonate, which neutralizes but little acid than by magnesium and calcium, which neutralize more acid. He believes that this pain which develops some time after the ingestion of food, is due to pyloric spasms which are relieved by sodium bicarbonate because of its tendency to aid in emptying the stomach through the stimulation of the motor function.

Kaufman,³⁴ after the examination of gastric contents of both healthy and diseased individuals, comes to the conclusion that too much value is laid upon the acid determination. High and low acid values are found in perfectly healthy individuals. Often those presenting typical symptoms of hyperacidity give no higher acid values than do healthy individuals. These disturbances, therefore, must be brought about by other factors, chief among which is gastric atony.

Albu³⁵ differentiates four forms of hyperacidity, (1) a pure nervous secretory disturbance, (2) accompanying chlorosis, (3) prodromal stages of peptic ulcer, (4) the expression of gastritis chronica hyperplastica.

Moore³⁶ made analysis of the contents of the stomach in cancer of other organs than the stomach. In the majority of cases he found a marked reduction of the total acidity, free hydrochloric acid being absent in 11 out of 17 cases. In the others there was almost invariably a marked diminution. After the removal of the growth there was no change in the production of the acid. The cause of the diminution of the hydrochloric acid in these cases has not been entirely cleared up. The author considers it the result of the increased alkalinity of the blood plasma, whereby the concentration of the hydrogen ions are diminished to such an extent that the production of hydrochloric acid is entirely checked.

Chase³⁷ presents a review of the literature on the subject of hydrochloric acid diseases of the stomach and the results of his own observation based upon clinical and laboratory studies. He has noted the effects of large doses of hydrochloric acid upon the gastric functions and comes to the conclusion that there is but little to be said in favor of the use of large doses of hydrochloric acid, and that there is some evidence that its employment may be harmful. He believes that the use of small doses tends to relieve certain symptoms but questions if it ever improves any function of the stomach. It is chiefly from the nervous disorders that favorable results come from the empirical use of the acid.

Summerfield and Roeder³⁸ made a series of experiments upon the physical changes which fluids of different molecular concentrations undergo in the stomach. His investigations are of special interest because he was able to exclude the saliva as a factor. The experiments were conducted upon a child with complete stricture of the oesophagus. They found that every solution in the stomach uninfluenced by the saliva changes its molecular concentration. Solutions isotonic with the blood become more dilute while the hypertonic solutions become more concentrated. The hypertonic solutions after remaining in the stomach for an hour show a higher freezing point than the blood.

Ackerman and Gompertz³⁹ call attention to the importance of a microscopical examination of the "fasting stomach contents" in making a diagnosis of diseases of the stomach. They describe the microscopical appearance of the normal secretions and point out a comparison with abnormal conditions. Abnormally we may find when there is no stagnation and no hydrochloric acid, unchanged leucocytes and epithelial cells and sometimes pus, blood, mucous, myelin bodies and sometimes infusoria. When there is stagnation with hydrochloric acid the findings would be food remnants, sarcinae, yeast cells and possibly blood. Stagnation and absence of hydrochloric acid, the Oppler-Boas bacilli, yeast cells branching and the absence of sarcinae, indicate cancer. For the development of infusoria four conditions are necessary, (1) the absence of hydrochloric acid, (2) the presence of alkaline reaction, (3) the absence of stagnation, (4) the existence of pouches or deep folds in the gastric mucosa.

Ury and Lilienthal⁴⁰ find that in two-thirds of all carcinoma cases albumose occurs in the urine. The results of such examinations vary however, in some cases, at different times. In 68 examinations, 38 positive reactions were found. In occasional cases albumosuria is noted in benign-intestinal diseases. The enterogenous albumosuria seems very improbable. In order to explain the existence of albumosuria in carcinoma of the intestinal tract, the histo-genetic origin must

be taken into consideration. While an undoubted diagnostic significance can not be attributed to this reaction in the urine its presence upon repeated examinations, would greatly strengthen the probability of the existence of malignant diseases of the intestinal tract.

Hulst⁴¹ made careful x-ray examinations of the stomach and intestines. His pictures of the normal colon and stomach, semi-distended with milk and bismuth vary greatly from the illustrations in the text-books on anatomy. He believes that the current conception of the size, shape and normal position of the stomach is bound to be modified in the future. The patient should be skiagraphed in standing or sitting position and not in the reclining position, since this position gives false results. He gave his patients meals including large amounts of bismuth. The first picture taken immediately after the meal indicates the position of the stomach, the second picture, taken four to six hours later, determines the relative length of time needed for the stomach to empty itself of the bismuth, and the third picture is taken from ten to twelve hours after the digestion of the meal to determine the location of the colon. Judging from the length of time the bismuth remains in the caecum, he believes it to be more of a receptacle than is the stomach.

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SURGERY.

IN CHARGE OF

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If any leading tendency can be said to have developed in the past twelve months it is that the trend of surgery has been away from the purely anatomic and toward the physiologic. It is universally recognized that surgery along purely mechanical lines has reached its highest development in this country probably with the Mayos, in England with Robson and Moynihan, and on the Continent with Mikulicz (just dead), and Kocher. Further advancement must come along lines suggested to us by physiologic consideration. In our own country George W. Crile and Harvey Cushing may well be said to lead in this endeavor. Their especial productions are too well known to need extended mention here. If the surgery of the future realizes what they seem to have reason to expect we are sure to note advances no less startling than those which succeeded the advent of anesthetics and antiseptics.

During the last year renewed attention has been called by Schloffer to the value of balsum peru as an adjuvant in the treatment of wounds. He states that histologic investigation has shown an extensive lococytosis in the neighborhood of this drug. On the other hand an inflammatory reaction never takes place. Another peculiarity of the material is that a very considerable number of days are required for its absorption from any given location.

Kuester described a very interesting case of local tetanus cured by the injection of antitoxin into the nerves supplying the region affected. The patient cut his hand and infected it with tetanus bacilli. Upon the occurrence of local symptoms and also on the commencement of general symptoms the brachial plexus was injected, with great resulting improvement during the next twenty-four hours and, finally, a complete cure.

An excellent suggestion with regard to the use of gauze on open wounds comes from Lauenstein. In order to avoid injury to granulation tissue which is so common, he advises that the layers next the wound be soaked in paraffin. This has the advantage of allowing excreta to pass through. Local tetanus received consideration at the hands of Axhausen, who reports a case of injury to the hand followed by this form of infection. On the 36th day the general symptoms commenced to disappear spontaneously, and on the 50th day the local

spasm began to improve. The child recovered perfectly, and ten similar cases are reported from the literature.

It is interesting to read what Bernhard writes about the open treatment after skin transplantation. He places his patients where the sun can shine on them and says that in a quarter of an hour the grafts are firmly dried in place. At the same time he mentions that a similar treatment has an astonishing effect on the growth of epithelium over a granulating surface. Of course one must take into consideration the fact that Bernhard worked up in the Engadine Valley in Switzerland, about 6,000 feet above the ocean's surface. Mention must be made of Sueves article on the treatment of burns and skin grafting. He also used no dressing at all but allowed the air to come directly into contact with extensive burned surfaces, merely powdering them with stearate of zinc. He kept the wounds as clean as possible and removed every bit of fluid excretion by washing the wounds with saline. Further than this, it is simply necessary to keep the room temperature at about that of the blood, and bathe the healthy skin with water occasionally.

An instructive article on ascending currents in mucous canals was contributed by Bond who worked on a fecal fistula and noted the elimination through it of colored material which was injected through the anus. He finds that cathartics do not abolish this backward current, and that it takes it three days for a given particle to travel the full length of the large bowel backward. In the same way material travels backward up the uterus and tubes. The same may be said of the biliary apparatus and of the milk glands. This exceedingly interesting article will more than repay a reading of the same in full.

Existing theories on Cargile membrane were shattered by Craig and Ellis. It is hardly necessary to go into the details of their interesting and valuable work. It can be said in a word that they practically upset all theories on the subject.

New light was thrown by Katzenstein upon the subject of collateral circulation. He made ninety-eight animal experiments and came to the conclusion that new arterial routes are established by a central increase of pressure as well as by peripheral diminution of the same. In order that this may be properly accomplished a particularly strong, healthy heart is necessary, else the strain would be too great for it. Collateral circulation is established in the vessels which lie between the aorta and the femorals in the space of about three months.

Friederich, who has done so much well known work in surgical bacteriology, published a valuable article on the treatment of infected wounds. The leading suggestion contained in it is that the free excision of wound edges should be practiced much more commonly than

it is at present, as it is even possible by this means alone to obviate local as well as general symptoms.

Some striking points were recently brought out by Legge in an article on industrial anthrax. He states that fully one-half of the 3,000 packasses which were taken on the last expedition to Thibet, died of this disease. Where the antitoxin was used strikingly good results were obtained. During the last epidemic in Italy the death rate was only six per cent., whereas it had been twenty-four per cent. previous to the introduction of the antitoxin.

Fatal poisoning with boric acid is recorded by Dopter. This was on a burn in a 10 per cent. paste of which 80 grammes were applied. This will no doubt surprise many surgeons, who are in the habit of using this drug in a way which suggests confidence in the fact that it is perfectly harmless.

It is interesting to note that Hartman and Weirich were successful in grafting skin taken from amputated extremities. They did this several times, making large Krause grafts and being perfectly satisfied with the results. The use of this method certainly simplifies a procedure which has in the past been attended with very many difficulties.

Mention must be made of an article by Praessler on the pathology of Basedow's disease. He experimented with the extract obtained from the thyroid gland of such patients and found that it had no effect on animals, similar to the manifestations which we see in the human, hence, we would arrive at the single conclusion that we have in this disease no such direct toxic effect as we ordinarily ascribe to ptomain poisoning.

A most valuable and original suggestion is made by Harvey Cushing for the teaching of surgical technique to students. Dr. Cushing has been successful in having a veterinary hospital built by the Johns Hopkins Medical School, and in this he accomplishes two objects which were never attained in the old way of teaching the subject. In the first place he has the great advantage of handling living, bleeding tissue, and in the second the students learn as much as they have a mind to of the disease at hand. With this latter object in view, histories of humans similarly affected are taken from the Johns Hopkins surgical clinic and are made the basis of a study of the symptoms presented. Those who are teaching this branch of surgery cannot do better than profit by the suggestions contained in this well known author's article.

Existing theories on shock and hemorrhage received little consideration in the valuable article by Crile, which was published last June. His work has been wholly experimental and has in no sense followed the beaten paths. Both of these lesions manifest themselves in a low-

ered blood pressure in the arteries and increase of that in the veins. Increased intra-cranial tension, from whatsoever cause, is accompanied by a general increase of blood pressure, and this latter must be maintained if danger is to be avoided. This lengthy article contains so many golden suggestions for the practical surgeon that it must be read in the original to be appreciated.

New light is thrown upon surgical physiology by Crile's article of last August. In it he goes minutely into the clinical differences between inhibition and obstruction of respiration. He considers at length the many new features of general and local anesthesia, as well as the value of blood pressure registration in many conditions. His work in resuscitation reminds one of the days of magic and will almost be impossible of belief to the one who has not personally observed it.

Renner, following the suggestion of Mikulicz has written an instructive article on artificially produced leucocytosis as a means of increasing the resistance of the body to infection. He shows that the introduction of salt solution into the peritoneal cavity or the subcutaneous injection of nucleinic acid will both of them bring about a considerable increase in the number of white blood cells. The colon bacillus has been affected more than any other with which the author has as yet experimented, and though clinical tests seem to give the method some value, still it is doubtful if enough of an effect can be produced to make it generally highly useful.

Cancer furnishes a never ending source of study. It interests the profession and the laity alike, and while some fresh light has been shed upon various aspects of the matter, still the subject is apparently as far from a definite solution as it ever was. A highly suggestive article emanated from Juliusburger who studied the 7081 fatalities between 1885 and 1889 noted in Prussia alone. As a result, he finds that the number of cases is constantly on the increase, but among the better class rather than the lower class of women. More men, however, are effected than women. The average of death was 55 1-5 years. In the order of their mention the following organs were involved: stomach, uterus, liver, intestines, esophagus. The chief causal factor noted is heredity. Castration for cancer of the breast is again urged by Michels, who claims that a great improvement in the patient's condition follows the method. However, he grants that most of the patients finally succumb to the disease. He reports the results in 99 cases.

It is interesting to read what Prof. Von Bergmann wrote concerning the diseases which antedate cancer. Those that he mentions are

acne, cirrhosis, lupus, xeroderma pigmentosum, as well as all scars, fistulae, ulcers, eczema, warts, and birth marks. Suggestions coming from so vast an experience, and an authority so eminent, must be duly regarded to say the least.

Mention must be made of a case of acute haematogenic carcinoma reported by Lippmann. The case was originally one of stomach cancer, which spread suddenly through the blood stream to every conceivable tissue of the body.

An instructive article by Teissier treats of chronic rheumatism and cancer. He states that there are families, one branch of which has suffered for generations of cancer, and another branch of rheumatism. He states that these two diseases are decidedly prone to occur on the borders of various bodies of water and in moist regions. He has further noted that manifestations of these two diseases alternate in the same individual, but they can exist and develop side by side. Some new light on the operative treatment of cancer of the breast was shed by Warren in his recent article. This now well known article, with its beautiful illustrations, may be said to base its claim to novelty on the manner in which the skin flaps are brought together to avoid the necessity of grafting.

Dr. Willy Meyer's article of last summer, describing his results in 70 such cases forms a valuable contribution to the operative treatment of this disease. Dr. Meyer was probably the first surgeon to suggest the operation which is now most commonly performed, namely, the dissection of the axilla which commences at the lowest point on the axillary vein and proceeds systematically inward and downward toward the waist line.

Every year there is a renewed discussion of anesthesia and anesthetics. New drugs and new methods of administering them are being constantly suggested. In spite of this, however, the use of ether alone is rapidly on the increase in America. Chloroform is being less and less commonly seen and very dilute solutions of cocain seem to meet with most general approval in local work. However, it must be kept in mind, that morphine, ethyl chloride, scopolamin and other drugs do, in certain hands, and for certain cases, furnish valuable aids to general anesthesia. The article by Mueller on the influence of various anesthetic gases on the internal organs must command the attention of serious readers. He states that the blood pressure is lowered by chloroform decidedly less when oxygen is administered at the same time. The bad effect upon the heart muscle is also diminished thereby. However, this does not help much when the narcosis must be repeated at frequent intervals. The mixture of oxygen and ether does

not lower the blood pressure, while the effect of ether upon the internal organs is diminished when oxygen is mixed with it.

Some striking new thoughts are suggested by Pringle, Maunsell and Pringle in their work on ether as it affects the kidneys. They find that these organs excrete only about 4 per cent. of the normal quantity while the patient is under the influence of the drug, and only about 2 per cent. of the normal quantity of urea is found at this time. What is worse, this diminution seems to increase progressively with the duration of the anesthesia.

An instructive article on acidurea as a cause of death from chloroform and ether, is that of Guthrie who finds the source of the acetone in the urine in a decomposition of the fats of the body. Thus it happens that extensive fatty infiltration of the liver is seen in patients who have died from these drugs. In order to minimize the dangers attendant upon their administration the author calls attention to the following points.—the digestive disturbances, a diet free from fat, the avoidance of anger and fear, both of which cause acetone urea and the treatment of the condition with bicarbonate of soda.

Mention must be made of Mueller's article on fatty metamorphosis in the parenchymatous organs after mixed narcosis. He used almost every drug that can be thought of, and the results which deserve a review will be highly appreciated, if read in the original.

A new anesthetic called stovain is advocated by Cernezzi. It is claimed to be about one-third as poisonous as cocain and to work in much the same way. Its value is increased by mixing it with adrenalin. It can be sterilized by heating, and can be conveniently used in the strength of $\frac{1}{2}$ of 1 per cent. An excellent suggestion is embodied in Seelig's article on Scopolamin-Morphin as an Adjuvant in the Administration of General Anesthetics. With ether, Seelig's method gives a very prompt result, only two or three minutes being consumed before the patient is fully anesthetised. There is no embarrassment of respiration, while post-operative nausea and vomiting are reduced to a minimum.

Some striking new thoughts are to be found in Roehricht's work on glycosuria after ether narcosis. We knew very well this phenomenon complicated the administration of chloroform, but this author shows us that sugar to the amount of 1 per cent. can be excreted when ether is used. He examined the urine of 53 patients to get at this interesting result. Bowdine makes a plea for the use of local anesthesia in all operations for inguinal hernia, basing the same upon this usage in 300 cases.

Surgery of the blood vessels has steadily advanced during 1905. Carrell, now connected with the University of Chicago, has done the

most astonishing things with very small vessels. For instance he makes end to end sutures of the thyroid in a small dog, and performs other feats equally surprising. He has, by means of vessel sutures, succeeded in transplanting hearts, and keeping the animal alive for a considerable period of time.

Currie relates a case in which he did trans-peritoneal ligation of the external iliac for aneurism, with complete cure. He was able to collect only eight similar cases from the entire literature on this subject, and considers that it is the route of the future to these lesions. A seemingly excellent suggestion is made by Mueller for stopping hemorrhage by cotton packs which have been soaked in adrenalin. These have, in his practice, been especially valuable in hemorrhage from mucous membranes, ulcers, etc.

The Influence of Adrenalin, Spermin, etc., on the Circulation, is the title of an article by Baum, who has experimented considerably along this line. He considers that these should be used only on normal tissue, on account of the fact that an excessive hyperaemia follows their use upon inflamed and otherwise diseased tissues. Spermin acts directly antagonistic to adrenalin by increasing the rapidity of the circulation and at the same time by dilating the vessels.

It is interesting to read what Boddeart has written about experimental venous edema. He considers that the ligation of the contiguous lymphatics plays a great role in this matter, when we have been accustomed to consider it due to the obstruction of a vein lying between them. Collaterals are so rich in number that it really makes very little difference when we ligate large veins alone. However, if this ligation leads to extensive thrombosis, then of course the matter is different because collaterals may become blocked at the same time.

Mention must be made of Faure's description of a case in which he operated for popliteal aneurism. He completely excised the sac after ligating the supply above and below. Gangrene set in and amputation was necessitated. He thinks that the articular branches to the knee joint got caught in the ligature thus preventing collateral circulation forming, but at the same time he admits that the use of rubber constriction may have had something to do with the matter. An instructive article by Mendes relates the histories of two patients in whom he excised carotid aneurisms. He says that firm adhesions around these sacs are to be expected only in very old cases. He does not seem to fear brain complications as much as one might expect, saying that they are very likely to be transient and to do the patient absolutely no permanent harm.

Some of the existing theories on ligation of the aorta were shattered by the work of Katzenstein, to which mention has been made

higher up. He not only proves that the operation can never do any good in any pathological condition whatever, but brings out clearly the dangers which must invariably attend it. It is interesting to note that one of the many patients on whom it has been performed since it was first introduced by Sir Astley Cooper, almost a century ago, lived forty days. New light is thrown upon ligation of the internal jugular vein by Dengel who relates a case from the clinic of Garre. The operation was for malignant disease of the veins, and both of these large vessels were tied. There was very little disturbance of the circulation as strange as this may seem, the vertebral veins having taken up the work of the others, and in addition to this collaterals having formed around the foramen magnum. As one might readily expect under the circumstances, these veins were found to have already been very much impinged upon by the growth.

The surgery of the nervous system has received a greater impetus by the surgeon, Harvey Cushing, than by that of any other individual operator during the past twelve months. The advanced work which this author is doing will be referred to lower down in the chapter on this subject. Some striking thoughts are to be had from Perthes who wrote concerning the regeneration of nerves after their extirpation for tri-facial neuralgia. He drew out the infra-orbital nerves of animals and plugged the canal with gold. Seven months later it was found that the ends of the divided structure had been successfully held apart, hence he advises this as a practicable and rational idea for surgeons to follow. The article of Woelfler on suture of the hypoglossal nerve cannot fail to be of interest. This operation was carried out four and one-half months after an attempt at murder by cutting the throat had been made. Six months later the movements of the tongue and speech were greatly improved. It is claimed by the author that this is the first case of the kind, although others in which the nerves had been injured but where no attempt at repair was made are reported.

Frazier described a patient from whom he had removed almost one entire hemisphere of the cerebellum. This was necessitated by a recurrence of a malignant tumor, three operations being done in all. There was apparently no immediate or remote disturbance from so extensive an operation, the patients sometimes being greatly improved after each of these decidedly major procedures.

Influence upon the Pulse in Peritonitis, is the title of a paper by Strehl, who has done much experimenting along this line. He removed the celiac and superior mesenteric ganglia from twenty-two cats and came to several interesting conclusions. There was proneness to intestinal disturbance, with loss of weight and strength, and he considers that the removal of the ganglion first mentioned merely hastens the

emptying of the bowels and causes a dilation of the blood vessels. The amount of information contained in the article can only be adequately judged by a reading of the same in the original. It is interesting to read some of the extracts from Hutchinson's recent volume upon the surgical treatment of facial neuralgia. He says that there is on record but one case in which this disease was cured spontaneously. Microscopic examination of the ganglion and its branches reveals practically nothing abnormal. As long as only one branch is affected the author does an extra-cranial resection; where more than one branch is affected and an extirpation of the ganglion is deemed wise, he protects the portion of it from which the first branch arises, thus differing very much in his opinion from American authorities, most of whom, including Harvey Cushing, deem such a procedure of very little value, total extirpation being deemed necessary in such cases.

Mention must be made of Lange's contribution to the treatment of sciatica. He injects eucain directly into the nerve trunk at the point where it emerges from the pelvis and sometimes repeats this in a few days. He found that it worked like a charm in five cases. He does not consider that the effect is due so much to the specific action of the drug used, but rather to the spreading and general mechanical disturbance of the nerve fibers, so that the mechanical result accomplished is rather similar to that brought about in stretching of these nerves.

Many brilliant new ideas are suggested by Cushing's article on the special field of neurological surgery, which appeared last March. It is undoubtedly the most comprehensive one of its kind which we possess. He gives a general review of the surgical procedures which have been considered adapted to nervous diseases, and makes mention of methods which have originated with him. He is far more hopeful than some of the older authorities on the subject of brain tumors, and lays due stress upon the much neglected palliative operations which are practicable in such cases. He does his decompression operations low down on the temporal muscle and accomplishes the desired result, that is he gets the hernia without the undesirable fungus. He has saved new-born babies, the subject of intracranial hemorrhage at delivery, and hopes that the ordinary form of cerebral apoplexy may be influenced in the future. He uses ether instead of chloroform and advises dividing the spinal cord above an inoperable cord tumor, in order to save the patient suffering. A reading of this paper in the original is absolutely necessary, as no review can hope to cover material so extensively treated. The same author presented, in five numbers of the *Journal of the American Medical Association*, the most exhaustive monograph which has appeared in America on surgical aspects of major neuralgia of the tri-geminal nerve. He reported twenty cases

in which he had done the operation, which bears his name, for removal of the Gasserian ganglion. Only one of twenty-three patients who had been operated upon at the Johns Hopkins hospital, where this method has been strictly followed, has died, which is in itself a sufficient attestation to the value of the method. The post-operative results as far as nerve disturbances are concerned have been studied with the greatest care by Cushing and are given due consideration here. The eyeball had to be enucleated twice in this series, but the patients seemed to consider the operation more than justified in view of the relief which was afforded.

New light is thrown upon nerve suture by the report of Chaput that he performed this operation fourteen years after the ulnar nerve had been severed. The patient had atrophy and anesthesia in the regions involved. Two weeks after the operation the latter symptom had disappeared and motion had commenced to return. There has been steady improvement ever since and the seemingly impossible has apparently been accomplished.

Existing theories on the treatment of purulent meningitis are given somewhat of a shock by Kuenmell in the work recently done by him on the operative treatment of the same. As a result of his experience, he goes so far as to avoid the idea that the future treatment of epidemic meningitis will be surgical. He has cured cases which were sufficiently general after a local exciting cause to lead him to hope for the realization of an improvement in the statistics on this subject.

The article by Furet on the surgical treatment of facial paralysis states that operations for this malady have been performed twenty-five times since this was first attempted in 1895 by Ballance. Seven times the hypoglossus was used for suturing the peripheral portion of the facial and in the rest of the cases the special accessory. Six times there was no result. In the rest of the attempts there were all degrees of improvement from very slight to perfect.

Schifone presents a paper on the effect of resections of a large portion of the skull and dura upon the structure and function of the brain. He operated on thirty-two animals and came to the conclusion that bone is never reconstructed over a large defect in these two structures. All losses of substance in the cortex are supplied by a new growth of neuroglia. There is very little likelihood of cerebral hernia unless there has been an increase in intracerebral tension, or an infection has taken place.

In considering the surgery of the face, we must not fail to mention an interesting case reported by Watts, in which a horse bit off the entire lower lip of a man. The defect was supplied by dissecting a flap with pedicle from the forearm, and cutting through the pedicle

at the expiration of four weeks. During this time the patient's arm was held in a plaster cast in the proper position, and the result was altogether satisfactory as far as appearance and function went. An excellent suggestion comes from Matas for the treatment of fracture of the lower jaw. The New Orleans surgeon proposes a detachable metallic interdental splint with an external support. This is constructed of tin and is a plate which fits on the lower teeth, firmly fastened to another which supports the jaw. There is no pain, the patient can eat and drink as usual, and Matas gives most favorable results from six cases so treated.

Fracture of the base of the skull is quite exhaustively treated by Walton, after examining the skulls of fifty individuals who died as a result of this lesion. He says that the usual direction of the violence is horizontal and directed against the anterior, posterior or lateral aspect of the skull. He considers a fixed pupil as indicative of a very bad prognosis and states that the reflexes are usually increased, due to a rupture of cerebral fibers, which frees the spinal centers from all control.

It is interesting to note what Routier writes concerning enchondroma of the tongue. This is an extremely rare malady, and in the case noted increased during four years to a very considerable size. A definite diagnosis could be made only after excision of the same. The plastic work on the tongue in this case healed perfectly, though the same is too recent for any definite conclusion as to cure. Mention must be made of a case reported by Kacosi in which the entire face was torn away. The patient, a woman, was on a small step-ladder lighting a street lamp, when the ladder, which was standing upon an icy pavement, slipped from under her and her chin was caught upon a hook, with the result that the weight of her body tore the face mask away. The bleeding veins were immediately ligated and she was sent into the Heidelberg clinic. Secondary skin grafting made it possible to save her life, though she has to be fed through a tube, and has finally learned to talk so that she can be understood.

An interesting article by Walther gives his views on the treatment of sarcoma of the malar bone and orbit with the x-ray. After two recurrences in one case, the x-ray caused a complete disappearance of the mass, even though it was located at the extreme back of the orbit. This case was presented before the Surgical Society of Paris, France, and will no doubt do something toward renewing our waning hopes in this line. New light is shed by Von Bruns upon the trachea in its relation to struma. He examined 100 cases with the x-ray and finds that it is easily possible to show all of the changes in size and position of this organ, which follow the presence of such tumors. The article

can hardly be appreciated unless the accompanying illustrations are seen, these being so astonishingly plain as to make a perusal of the article well worth while.

Some rather striking ideas are presented by Von Graff in his discussion of operative injuries of the thoracic duct. He found 27 such cases in the literature covering a period of 29 years, and comes to the conclusion that the escape of chyle produces very pronounced digestive disturbances temporarily. He finds that immediate ligation or sutures of the duct are the only ways that this can be at once controlled, and adds that ligation of the duct has no ill effect, since the collaterals are so exceedingly rich in number.

The article by Franck on distending the esophagus with air, in order to remove a foreign body, details a case in which this simple expedient proved successful. The patient had an immense mouthful of meat caught in the above-mentioned organ and was unable to expel it in either direction. He was advised to drink the two halves of a Seidlitz powder separately, and then to prevent the escape of gas above by holding the mouth and nose closed. In a moment the obstruction was forced into the stomach.

Pineles presents a highly interesting clinical and experimental contribution on the physiology of the thyroid gland. He noticed that tetany could not be produced by complete removal of these glands as long as the parathyroids were left behind. But, on the other hand, if these last named are removed tetany is at once produced, but without cachexia—at least experiments on cats and dogs turned out this way. He explains the occurrence of tetany in the human by the fact that in operations performed in such a manner the lower poles of the gland on both sides are removed and it is almost impossible to leave the parathyroids behind; hence it may occur even though a considerable portion of the gland remains in situ, namely, the upper segments. Some good suggestions are to be found in the article of Kramer upon the treatment of large foreign bodies in the cervical portion of the esophagus. He describes a case in which it was impossible by ordinary means to regain a set of false teeth which had been swallowed. He commenced a cutting operation, but found that it was utterly unnecessary to open the viscus since with a little pressure exerted on the outside the patient was sufficiently aided so that he was able to expel it by his own effort in coughing. The author does not know of this having been done previously. In the second case he was able to accomplish the dislodgment of a fish bone in a similar manner.

The Formation of Bone in Struma, is the title of an article by Sehrt. He examined 28 goitres and found that 14 of them contained this unexpected substance. It is true, as revealed by the microscope,

that this was bone and not merely an accumulation of lime salts. He thinks that in about 35 per cent. of the calcified goitres true bone can be found if properly looked for.

Worthy of discussion is an investigation of progenitur thyreopriver by Lanz, who has been experimenting for twenty years upon animals of various species to find out how the offspring are influenced by removal of the thyroid gland of the parents. He found that a hen from which the thyroid had been removed laid an egg only 1-10 of the normal weight, and that thyroid feeding would produce a greatly increased number of eggs, up to three times the normal, in fact. Animals which have horns lose them after this gland has been removed, and rapidly grow old. It is interesting to notice that some of the oldest patients operated upon in the early days when we removed the entire thyroid, have been restored to health as a result of thyroid feeding. In this connection it may be added that cretins have been beneficially affected by the same procedure. This article contains a great number of points to which no reference even is possible in a review, and a perusal of the original is warmly recommended. The same author in writing upon cachexia and tetania thyreopriva says that the goats of Switzerland are much less affected by the removal of the thyroid than are those of Holland. The comparison was made in writing of the earlier patients at Berne and Vienna. At the first named clinic myxedema occurred very frequently while in the latter tetany most frequently supervened upon complete removals of the thyroid.

There appeared recently an article by Pfeiffer on intratracheal struma, in which he found that a projection of the gland extended in between the rings of this organ and presented beneath the mucous membrane upon its posterior wall.

The article by Friedheim upon the permanent results of the operative treatment of Basedow's disease, compares the results obtained in a few of the leading European clinics and shows most encouraging progress. Mikulicz lost only one out of eighteen cases, and cured ten. At Kroenlein's clinic two out of 24 died, while 16 were cured. In the hands of Kocher 45 were cured out of 59, and 4 died. On the other hand it has been found that about 12 per cent. of these cases die from the disease directly if left alone.

The surgery of the chest received some striking new thoughts at the hands of Garre. In an article on the suture of wounds of the lungs, he states that 40 per cent. of these cases die if not operated upon in the manner mentioned, but on the other hand, if this is properly done the escape of blood and air into the pleura and the consequent infection may be prevented. He operates in the presence of repeated hemorrhages, or pneumo-thorax. He has treated 12 such cases,

suturing the lung nine times and packing the cavity three times, with nine complete successes.

New ideas in surgery are advanced by Wullstein who proposes to treat certain portions of the digestive tube absolutely outside of the body. He proposes to get around stenosis of the esophagus by bringing as much as possible of its cervical portion out on to the anterior chest wall, while a portion of high intestines is brought up on to the abdominal wall and the free ends united by some sort of plastic. Of course one can think of startling possibilities if work is carried out along these lines.

An instructive article by Parquier details a case of a hypertrophy of the mammary glands. This was double and existed with gradual increase for eighteen months. Both breasts were removed, the right one weighing 26 lbs. and the left 20 lbs. The microscopic examination showed the overgrowth to be due to the presence of fibrous tissue.

Probably the most original proposition which has lately been made toward elucidating the problems of chest surgery is that of Sauerbruch, whose experimental work in a low pressure cabinet is already well known. This author, by partially exhausting the air from a closed chamber in which he works succeeds in opening both pleural cavities at once and doing almost anything he desires with the contained viscera without seriously interfering with the animal's health. This opens up a world of new possibilities, and in order that the technique and rationale of this work may be understood it is absolutely necessary that the article be read in the original.

Mention must be made of Keen's article on massage of the heart for chloroform collapse. He had two personal experiences, one of his patients living, and reports 25 similar instances in which three additional lives were saved.

It is both interesting and instructive to read what Faure wrote on the surgery of the posterior mediastinum, its past and future. All of the earlier operations on that part of the body resulted in failure because sufficient access to the parts within was not gained. The author proposes a method of accomplishing this, which differs from others simply in the fact that the first rib as well as those below it are divided, this allowing the surgeon to swing the shoulder as far outward as he pleases. No drain should be used in such cases; if it is, the patient will gradually pump this space full of air and compress his lungs enough to suffocate himself.

One of the most exhaustive and interesting articles of modern times is that by Madelung on post operative prolapse of abdominal viscera. He finds that this has occurred in spite of every variety of abdominal closure where drains were left as well as where they were

not used. It has occurred after the use of every kind of suture material, both in patients who were allowed to get up early and those who were not, and surprising to note, it has been as late as the 17th day after the operation. He collected 144 cases of this kind, and chronicles so many interesting and instructive facts that the article must be read in the original to gain any conception of its value. Coughing and intestinal distention seem to have been the two factors most generally harmful, although the accident has happened in the absence of both of these. The patients, many of them, did well after the viscera were returned to the abdominal cavity, and indeed a number of those lived where no reposition was possible, and in these the intestines gradually withdrew of their own accord into the cavity and the wound healed so solidly that in some no hernia ensued.

Food for thought is contained in Robson's dissertation on inflammatory affections of the pancreas. He calls our attention to the frequency with which pancreatitis is associated with mumps, and states that the most common cause of inflammation of this organ is to be sought for in gall stone disease. He gave the results of ten cases and states that only 8 out of 62 patients suffering from chronic catarrh of the pancreas died as a result of operation. Thorough drainage of the biliary and pancreatic ducts is the treatment indicated under the circumstances. An unusual case is described by Garre. A man was caught between the buffers of two railway cars and in consequence the pancreas was torn in two at about the middle. Four and a half hours after the injury a large quantity of blood was found in the abdominal cavity and in order to stop the flow the two halves of the organ were united by deep through and through sutures. On top of the suture line gauze was packed and in a short time the patient made a satisfactory recovery, this being the only case of its kind on record.

Wm. J. Mayo detailed the immense experience of the Rochester clinic on surgical tuberculosis in the abdominal cavity. He found as a result of his work, embracing 144 operations for this one cause alone, that very many patients recovered from peritoneal tuberculosis only when the primary cause was removed. In their early work the Mayo Brothers did not look for the primary cause but contented themselves with simply opening the cavity as others were doing and draining it. After this had been repeated several times on the same patients, in many instances they found that by removing the fallopian tubes, or tuberculous appendix, that the fluid no longer reaccumulated. To show that this reasoning is rational as to the cause of the disease, one has but to mention the fact that it was found much more frequently in the female than in the male. This article, which is the most exhaustive

that has appeared on this subject, will more than repay a reading in the original.

Worthy of discussion is an article by Clairmont and Ranzi on the treatment of diffuse suppurative peritonitis. This article embodies the results of more than three years' work in the first surgical clinic of Vienna. Emphasis is laid upon the value of flushing with large quantities of salt solution. Gauze drainage is used extensively, as are many other ideas which have long since been given up in American clinics, which can show far better results than those detailed in this article.

Kausch advances the idea that serious dilatation of the stomach without some form or variety of stenosis of the pylorus is impossible; at least he found it to be the fact after carefully examining the immense material of the Breslau clinic. Spasm of the bowels gives a very mild dilation as compared with that of organic stenosis.

An excellent suggestion is advanced by Brunner for the treatment of the stump of the duodenum after resection of the pylorus. He brings the stump up to the parietal peritoneum and anchors it there, unless it happens to be particularly easy to close the same in the ordinary manner. He has never lost a case from a failure of this method, whereas he finds in literature quite a number of fatal cases in the hands of the very best surgeons who have taken care of the stump in the ordinary way.

The pathology of Cancer of the Stomach, is the title of an article by Von Tabora, in which he states that a very important diagnostic sign of this malady has been found by him to be the presence of blood clots about as large as the head of a pin in the stomach washings long before any other symptoms of the disease manifest themselves.

It is very interesting to read Brandt's article on the Marwedel gastrostomy. He says there is no possibility of any such thing as an artificial sphincter forming after this or any similar operation has been done. He considers such a fistula is prevented from leaking simply by the elasticity of surrounding tissues whereas muscles certainly do not come into play at all. Of all the methods which have been proposed he recommends above all others the one mentioned at the beginning of this article, because it is simply sure to hold and requires comparatively but a small portion of the stomach wall for its performance.

Mention must be made of Manry's scheme in displacing the Magraw ligature and using in its stead a triangular stitch of silk, which is intended to cut a three-cornered opening between the stomach and intestines. The technique must be read in the original to be fully appreciated, as illustrations accompany it. The idea is unfavorably discussed by German authors although there seems to be no good reason why it should not be thoroughly successful.

An instructive article on the operative treatment of chronic gastric ulcers appeared from the pen of Jedlicka. He is strongly in favor of excision of the pylorus. In more than one-fourth of the cases which were so treated in Maydl's clinic cancer was found to be beginning. On the other hand mortality in this last mentioned malady is much higher than in the other, consequently it appears reasonable to urge this as good grounds for resection, especially when we consider that the percent. of permanent cure of cancer is relatively small as yet. In the cases mentioned the stomach was opened and examined from within. In writing on this same subject Kroggius mentions the fact that many patients have died of hemorrhage and perforation after a palliative operation has been done. In consequence of this he, too, is decidedly in favor of resection in these cases where no distinct contraindication exists. He regards the danger of leaving an open ulcer behind as far greater than the danger which accompanies its removal.

So it will be noticed that the tendency of the year has been rather toward the general adoption of the operation which goes by the name of Rodman, in this country at least.

Decidedly the most important article of the year on gastro-enterostomy is that by Wm. J. Mayo, which was read at the meeting of the American Surgical Association in July, 1905. He reports 500 cases in the concise though exhaustive way characteristic of him, and as a result of his last experience voices the opinion that a properly made gastro-enterostomy is to be regarded as the operation most usually applicable for benign disease of the stomach. There are, however, selected cases in which the Finney operation must remain the procedure of choice. Dr. Mayo now does his gastro-enterostomies without a loop, as low down as possible upon the posterior wall of the stomach using the rubber covered clamp as advanced by Moynihan and doing a suture operation of two rows, the inner being of catgut and the other of silk or linen. The many exact details contained in this paper, as well as its illustrative drawings make the reading of it in the original absolutely imperative for the serious student of gastric surgery.

Existing theories on the harmlessness of dumping the stomach contents into the small intestines received a shock at the hands of Tiegcl, in his article on peptic ulcer of the jejunum after such a procedure. He writes from the clinic of the late Professor Mikulicz, where so much of this work was done. With the characteristic thickness which marks some German writers, he fails to notice the literature of any but his own language, thereby limiting sadly the value of his article. Mayo-Robson and W. J. Mayo are not mentioned, to the discredit of German surgery. This condition was observed much more frequently following the anterior than the posterior operation. In one

case the symptoms appeared in eight days, and in another not until eight years had elapsed. The lesion is in all respects similar to the same thing in the stomach and duodenum and a diagnosis is difficult. If acute perforative symptoms manifest themselves very soon after an anterior operation we must note them by this complication.

New light is thrown upon the subject of duodenal ulcer by W. J. Mayo in a report of 58 personal cases. In his opinion gastro-enterostomy meets the condition completely by draining and protecting the affected area, the gastric juices being diverted from it thereby. In the paper mentioned Dr. Mayo had not yet fully settled in his own mind the best technique to be used.

Some striking thoughts are presented by Gould, who made a large number of experiments upon animals to determine the worth of a gastro-enterostomy. He did much toward establishing general knowledge of the fact that the stomach cannot be treated like an inert bag, and showed experimentally that its contents will not fall through an opening no matter what its size at the greater curvature so long as the pylorus is open. While we are perfectly ready to grant the importance of experimental work still it cannot be applied without reserve to the human subject, as Dr. Gould has done to a certain extent. He proposes a new technique, but a review is scarcely sufficient to make it clear.

Entirely original suggestions on gastro-anastomosis between the stomach and esophagus are offered by Sauerbruch, the author whose partial vacuum surgery of the chest has been mentioned in detail above. He suggests that half of a Murphy button be inserted through the mouth into any desired point of the esophagus within the chest and that the other end of the button be placed in the stomach, drawn through a slit in the diaphragm and the two halves pressed together while the thoracic cavity is open, thus making a new opening between these two viscera a very simple affair. Of course this can only be done by operating within the author's well known cabinet.

The article by Kelling on resection of the cancerous stomach details 54 cases and states that ascites is an absolute contra-indication of this operation. He says that in every such case the rectum and ovaries should be examined with scrupulous care for secondary deposits. Acid in the stomach contents, no matter what agent causes this reaction furnishes a good protection against infections of the peritoneum, since the germs which occur in alkaline contents are much more virulent. Some of the author's procedures have been so complicated as to seem almost ludicrous, and it may be stated that in carrying out one of his unique suggestions he lost five cases in succession. However, this remark is not meant to detract from a really excellent article.

There appeared recently an article by von Cackovic which contains some pertinent suggestions on the persistent reflex of bile after gastro-enterostomy. In 160 cases this occurred in about two-thirds where the anterior operation was done, and in only about one-third where the posterior method was used. The author ascribes it to an open pylorus, since in the cases where he reoperated and closed the pylorus this manifestation ceased immediately although it did not in the other cases that were reoperated without this being done.

Worthy of note is McLeod's case of foreign bodies in the stomach. He found an abscess in the anterior abdominal wall, and on opening and exploring the same discovered that it led directly into the stomach, which contained an immense collection of small articles, there being among them hairpins, safety pins, needles, screws, tacks, pieces of glass and chalk, coins and other foreign articles too numerous to mention. The walls of the viscus had become exceedingly thick, and though no apparent harm resulted from removing these unwonted articles the patient ultimately died from leakage from the gastric fistula.

W. J. Mayo's article on chronic ulcer of the stomach and first portion of the duodenum astonishes the reader by bringing the intelligence that 231 of these cases were operated upon at Rochester in the last two and a half years alone. The fact is brought out in no uncertain way that nothing is to be expected from operations done for gastric neuroses, or upon subjects of atonic dilation merely. The Mayos do not operate for an acute ulcer unless complicated by perforation, hemorrhage, etc.; but it is in the chronic cases that the greatest good is to be done. Dr. Mayo very rightly states that gastric surgery is only about five years old, and the best of it not more than two years old. The mortality at Rochester has been less than 3 per cent. in the last 150 of these cases. It is interesting to note that these patients came from 26 states and Canada. The technique as practiced by them has been described higher up in this section.

Many excellent suggestions are to be found in Mayo Robson's thesis on the surgical treatment of non cancerous affections of the stomach. In almost 500 operations he has had a mortality of only about $3\frac{1}{2}$, and states that there should be no vomiting or other complications, if the operation is properly performed. Surgery is only thoroughly satisfactory in these cases, as Wm. J. Mayo also has urged where stenosis of the pylorus is presented. It is not necessary to look for a bleeding point or to excise the ulcer as gastro-enterostomy almost always cured such cases. Mortality in these cases is about 25 per cent. where no operation is done, and the suggestions of this, the

greatest English authority on the subject, corresponds almost to the letter with what their own past experience taught the Mayos with regard to the best methods to pursue.

The Magraw ligature is treated by Ochsner in a particularly interesting and instructive manner. He has used it 156 times and seems particularly pleased and satisfied with the results. It shortens the time of operation, any size opening can be made and the peritoneum is in no danger of being soiled. In order to be able to emulate Dr. Ochsner's example in this matter, his article must be read and the technique fully understood before a few failures from a ligature improperly placed should be urged in criticism of the method.

The surgery of the biliary passages will never cease to be interesting as long as gall-stone disease is prevalent. The mechanical treatment of the same in surgery has reached such a high state of perfection at the hands of various American, English and German surgeons that there seems to be little further room for advance in this line. However, other diseases of the liver and its vicinity are constantly demanding surgical attention more and more, and they, as well as gall stone disease must be seriously considered in any review of the past year's work.

Dr. John C. Munro brought out the most exhaustive article which was published during 1905, on lymphatic and hepatic infections secondary to appendicitis. It is lengthy, and goes so much into detail that a critical review in the limited space allowed here is hardly possible. He has noted that it is the milder and more latent forms of appendicitis which lead to the most serious liver changes, and avers that abscesses under the diaphragm are almost sure to infect the pleura at the same time. The article takes up in all their minute particulars the causes, symptoms and treatment of these diseases, and can not fail to be instructive to the abdominal surgeon. The average case of appendicitis is not characterized by an unusually high temperature, hence, where this exists one of these complications must be looked for. As to the symptoms, jaundice may be present, chills, pains, vomiting, diarrhoea and great sensitiveness may be expected. The shortest route to the diseased focus is to be chosen, no matter just what this may be in the individual case.

A wonderfully clever suggestion for the closure of wounds in the liver is to be found in an article by Pahr and Martina. They inserted heavy catgut sutures through the liver substance and tied them over perforated magnesium plates which are placed just external to the edges of the wound, in such a way as to completely close the vessels in the edges of the defect. In the course of time, both the threads and

the plates are absorbed and consequently no foreign substance is left behind.

Experimental ligation of the hepatic artery by Haberer shows that in animals at least no very serious changes of the liver take place in consequence, on account of rich collateral blood supply, and he found that after this procedure had been carried out he could perform most extensive resections of liver tissue without the bleeding which commonly characterizes the same.

It is interesting to read Quenu's contribution to the surgery of the biliary passages. He made an artificial opening between the common duct and the stomach, and on the second day the patient vomited bile, showing that the new opening was patulous. Shortly after this, the patient died of pneumonia and the autopsy showed that there was no leak, or in other words, that the mechanical work had been perfect.

Mention must be made of Bain's experimental contribution to the treatment of gall-stone disease. He found that gall-stones implanted in a normal gallbladder were absorbed in eight or nine weeks. On the other hand, they remained practically intact in an involved gall bladder, and in this latter could not be influenced by any form of medication. He therefore considers it our duty in these cases to look for a remedy which will render the human gall bladder aseptic, and thus lead to the spontaneous resorption of the gall-stones. Owing to the paucity of data regarding the contractile force of the gall bladder, we must welcome the article by Freese. He found that by stimulating its motor nerves contractions could be induced which would cause an internal pressure which was only slightly in excess of the pressure of biliary excretion. The gall bladder has contractor and dilator nerves which arise from the splanchnic.

New suggestions for treatment of the biliary passages are given us by Kehr. He made a complete resection of the common duct for stricture, and succeeded in safely suturing together the two ends of the same. In true German style he left the threads hanging out of the wound, and he says that they came away two weeks later.

Some striking new thoughts are presented by W. J. Mayo, in his article entitled *Some Remarks on Causes Involving Operative Loss of Continuity of the Common Bile Duct*. He had seven of these cases in his first eleven hundred gall-stone operations, and in the one case to which most prominence is given in this paper, he anastomosed the hepatic duct directly into the duodenum with two rows of sutures. There was no leak at all, and the patient was discharged from the hospital perfectly cured, which certainly goes to show that an exper-

enced surgeon finds practically nothing impossible when dealing with these structures.

The article by Patel on A New Treatment for Biliary Fistula contains the simple yet effective suggestion that these patients may be cured where the trouble is not due to an obstruction of the common duct, by simply feeding them at frequent intervals during the day and night as well. In this way a continual flood of bile into the intestines, is stimulated, and naturally, since nothing is disposed to come out of the fistula, the latter closes rapidly and satisfactorily.

The subject of appendicitis is old yet ever with us, hence although it may be well termed hackneyed, cannot be passed over in silence as long as there is anything at all new or advanced being done along this line. There appeared recently an article by Lockwood on The Relationship between Colitis and Appendicitis, which furnishes some food for thought out of the ordinary. He states that the former condition sometimes accompanies the latter, and may be the direct result of it, and does not disappear until the small offender has been removed. On the other hand, there are cases in which the bowel symptoms are in the foreground for years before the appendix disease is recognized and treated.

Worthy mention are Fraenkel's studies on the blood vessels of the appendix. He injected these, both normal and diseased organs, with mercury, and then took x-ray pictures of them. He found that there was a rich supply of blood vessels in this region, and that the artery of the appendix possessed a large number of collaterals, and is in many instances, not the only vessel which supplies blood to this little organ. Indeed, the middle portion of the latter receives its supply through a special branch from the ileo-colic. Three articles on the treatment of the stump in appendicitis, are worthy of note. The first of these by Seelig, shows that it is safe to ligate the little organ, cut it off, touch it with carbolic acid, and drop it back into the healthy abdominal cavity. The second, by McLean, mentions doing something similar, and then putting a catgut purse-string over the stump, but this is shown by Corruin to have caused death in one case at least, in which the catgut was absorbed too soon, allowing the stump to become everted, and set up a peritonitis, which resulted in the way just stated.

Bernays, in an article entitled The Expectant Treatment of Appendicitis, an excursion into the field between surgery and medicine, refuses to be bound by traditions regarding the necessity or even desirability of placing the bowel at rest in appendicitis. He gives reasons based on success in his own experience for his belief that a big dose of salts is far better than a dose of opium, and this, whether the patient

is to be operated upon or not. Of course he, like other advanced American surgeons, believes that an early operation should be done in most if not all cases, but he will, under no circumstances, hear to the opium splint.

An excellent report of an interesting case is given by Kaufmann, who saw a gastro-enterostomy opening close secondarily, and a gastro-colic and jejuno-colic fistula form as a result of peptic ulcer. A second operation demonstrated the secondary condition, and six days after this the patient died. It is interesting to know that fecal vomiting was very rare in spite of this anatomical condition, which one might have considered as predisposing to it. Typhoid perforation will furnish us a subject of discussion until sanitary science has eliminated this disease from the number of maladies which afflict the human race. Taylor states that fifteen thousand people die of this accident in the United States every year, and further, that the half of them could be saved if an early diagnosis and an early operation were done. In this connection it is astonishing to note that no more than three hundred and fifty-two such operations had been reported from the surgery of all time up to 1903. The conclusion is self-evident.

It is interesting to read Schloeffler's paper on stricture of the bowel after interruption of the mesenteric blood-supply. In animals that survived the operation, it was noticed that a second ulcer and secondarily a circular scar developed, which latter constricted the bowel. Therefore the author was lead to believe that the crushing of the mesentery in incarcerated hernia is of great importance as a causal factor in the intestinal stricture, which frequently develops after the apparently healthy bowel is returned to the abdominal cavity, and the patient has made a good recovery from the procedure. The point is too interesting to be lightly passed over. Mention must be made of the passage of a tooth-plate from the alimentary canal, which is reported by Elmer. This object remained $3\frac{1}{2}$ years low down in the esophagus; was finally swallowed, and half-year later, was discharged through the anus. It seems almost incredible that anything of this kind could occur, with so large an object.

A valuable suggestive article by Harris calls attention to the dangers from the indiscriminate use of cathartics in acute intestinal conditions. These can do no possible good, because we are not called upon to treat the abstract condition of the bowels not moving, but to treat the cause which prevents the natural act, and by hammering away with cathartics, we simply overload the distended viscera, add to the danger of perforation, and reduce the patient's strength, as well as cause additional pain and ~~shock~~.

Existing theories on the surgery of the large intestines will have to be revised, or at least modified, if Pantaleoni's experience is to be adopted in general use. He reports four cases of resection, which he successfully treated with end to end, and with end to side anastomosis. All of these were successful, which certainly is as good as has ever been obtained by the method at two or three sittings, and certainly far more desirable for the patient. Absolutely new light was thrown upon the surgical anatomy of the small intestines by Monks. This author determined by actual measurements, many new and interesting things about the length, size, location and disposition of the various portions of the intestinal tract. He was able to show, by his experiments, why it is that only a single coil of the bowel can be emptied at one time upon the operating table. He came to several other conclusions which will be of benefit to the surgeon, and the article is most warmly recommended for perusal in the original.

Hernia has been deemed a fruitful field for new suggestions, and one by Polya may be considered in passing. This author proposes to treat femoral hernia by first suturing together the edges of the ring, and then after cutting across the sartorius muscle at its middle, and turning the triangular flap thus formed inward, suture it inverted to Poupart's ligament, and the fascia lata. He has done it with success on the living, and the ingenious procedure which seems applicable to every case is well illustrated in the original article.

We cannot help being struck by Bainbridge's report of a case of multiple hernia. His patient had six ruptures, and was successfully operated on for all of them at one sitting. At the same time a ventrofixation was done, and the appendix removed. This seems to be about the limit in this line.

The article by Bull and Coley on Fifteen Hundred Operations for the radical cure of hernia in children, is the most extensive thing of its kind that has ever been published in any language, as coming from the same operator. As one might expect, the results were practically ideal, and the leading thought to be learned from their experience, is that children over four years of age, can not be cured by a truss. However, operation is not desirable before that time of life, since there is a chance of spontaneous cure.

Although an article on inguinal hernia has not yet appeared from the pen of Charles H. Mayo, still no chapter on the advances in this line during 1905 can be considered as complete by a man who has seen Dr. Mayo's work, unless his method of doing this operation is at least mentioned. He claims no credit for original procedure; still the observer is struck by many things about the work, which he has not seen

elsewhere. In the first place, in exposing the canal, he opens the aponeurosis high up, and does not go into the external ring at all. Then, in closing the defect, he is careful to interpose the edge of the internal oblique muscle between Poupart's ligament and the upper flap of aponeurosis, in order that blood supply may be furnished by the muscle, and thus a union take place earlier than would otherwise be the case. After this suture line has been completed, he overlaps the other flap of aponeurosis, as Andrews suggested, and by closing the defect in the fat with the same suture, performs an operation which is a marvel of simplicity, neatness and mechanical perfection.

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DIAGNOSIS.

IN CHARGE OF

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The new diagnostic methods brought forward in the course of the past year have been so numerous that it has been found quite impossible adequately to cover the entire field in the compass of a brief article. It has therefore seemed better not to take up methods of physical diagnosis and the like, which if discussed at all must be described *in extenso* and with great detail. Only contributions to laboratory diagnosis will be discussed, and even of these no mention will be made of methods dealing with the diagnosis of gastro-intestinal affections since these will be taken up in the department of Internal Medicine.

URINE. One of the most important contributions to urinalogy during the year was that made by R. C. Cabot¹ of Boston as the result of the comparison of the post mortem findings and the clinical records at the Massachusetts General Hospital since 1893. He first went over the post-mortem records for twelve years noting the cases in which kidney lesions were found and comparing these findings with the results of urine analyses made during life. He then took the cases in which normal kidneys were found and looked to see whether the clinical records showed a normal urine. His results were astonishing. Both post-mortem diagnosis and urine analysis are beyond criticism at this hospital. Nevertheless the lack of correspondence between the two was striking. Of the 21 cases of acute glomerular nephritis only 5 were diagnosed as nephritis during life and not one was recognized as acute nephritis. Of the 10 cases of subacute glomerular nephritis, 5 were recognized as nephritis of one sort or another and 1 as acute nephritis. The 17 cases of chronic glomerular nephritis gave a better result. Thirteen were correctly diagnosed and in only 2 did the urine fail to indicate the presence of any renal lesion. Chronic interstitial nephritis was recognized in about two-thirds of the cases; in the remaining third the patients were under observation for only a brief period. In none of the 6 cases of amyloid kidney was the diagnosis made during life, though in four of them the diagnosis might perhaps have been made from the clinical findings. In the other 2, however, the diagnosis was not possible. Chronic passive congestion of the kidney can usually be recognized clinically, but only because the other signs supplement the deficiencies of the urinary find-

ings. The same is true of acute degeneration of the kidney such as accompanies many fevers.

Twelve cases were found in which the kidneys were normal post-mortem whereas the urine had shown albumen and casts. Twice the diagnosis of acute nephritis seemed justified and in one of them the patient was thought to be uremic. In 4 cases .25 per cent. or more of albumen was found, while in 6 there were epithelial casts. The urine of all 12 contained hyalin and granular casts. His conclusions are radical. He believes that the vast majority of estimations of urinary solids, including urea, are a waste of time, that the attempt to diagnose the anatomic condition of the kidney by the measurement of albumin and the search for casts is fallacious in the extreme and that the most reliable data about the urine are those most simply and quickly obtained, the twenty-four hour quantity, the specific gravity and the color.

Gentzen² obtained similar results. In the urine of 100 healthy individuals the sediment on standing, if then centrifugated, was found to contain hyalin or granular casts in about half the cases. He suggests examining the sediment obtained on standing or by centrifugation but not by the combination of the two methods.

Loeper³ believes that polyuria is one of the most characteristic symptoms of cerebrospinal meningitis. He has had patients with a temperature of 104 degrees or over who passed from 3 to 4 quarts of urine a day. Only when the intoxication is intense does the polyuria fail to occur. He relies greatly upon this observation in differentiating cerebrospinal meningitis from typhoid fever, grippe and tuberculous meningitis.

The new methods for the rapid estimation of uric acid are numerous out of all proportion to the clinical importance of the results sought to be obtained. Surveyor⁴ has devised the following method: Render the urine slightly alkaline by adding tiny drops of strong NaHO—boil it, and take 5 c.cm. of this boiled urine for examination. Add two tiny drops of HCl from a capillary pipette (each drop equals 0.02 c.cm.) stir it well; see that it is quite clear again. Freeze it and centrifugalize till the whole has remelted, and read off the percentage of deposit as soon as the temperature is about 25 degrees C. In case there is much pus or albumen or any other deposit is present, it must be removed by boiling 10 c.cm. of the urine acidulated with a tiny drop of glacial acetic acid, and 5 c.cm. of the filtered urine is to be treated as above.

Dimmock and Branson⁵ add to 100 c.c. of urine 1 gram of lithium carbonate, boil for 3 minutes, filter hot and wash the precipitate with a little distilled water until the filtrate measures exactly 100 c.c. To

50 c.c. of the filtrate, which contains uric acid as lithium urate, 5 grams of ammonium chlorid are added, shaking the liquid until dissolved. After three minutes the contents of the flask are warmed to 120 F. so as to secure a uniform aggregation of the precipitated ammonium urate. The whole is now poured into a tube graduated in parts per thousand of uric acid, and deposition allowed to take place, the reading being taken after four hours have elapsed.

Wile⁶ has ingeniously modified the turpentine guaiac test for blood in the urine as follows: To equal parts of chloroform and turpentine, tincture of guaiac (U. S. P.) is added, a drop at a time, until slight milkiness appears. To one or two cubic centimeters of this reagent the suspected solution is added and the mixture is thoroughly shaken. In the presence of blood the chloroform-turpentine-guaiac solution becomes blue. The color takes a few seconds to manifest itself, but gradually deepens until all the hemoglobin has entered into the reaction. The color then gradually becomes lighter and slowly disappears. This chloroform modification gives a clearly cut reaction, and is more delicate than the simple peroxid of hydrogen and guaiac reaction. The solution, if kept in an amber-colored container, will keep for several days without losing its power to give the reaction. Instead of using tincture of guaiac, a 10 per cent. solution of resin of guaiac in glacial acetic acid may be substituted.

On March 20th, Frommer⁷ demonstrated before the Society for Internal Medicine of Berlin a new test for acetone that seems destined to replace those ordinarily used. To 10 c.c. urine, 1 gram of solid potassium hydrate is added. Without waiting for complete solution to occur, add 10 to 12 drops of a 10 per cent. alcoholic solution of salicyl-aldehyde (1 part salicyl-aldehyde to 10 parts absolute alcohol) and warm gently. The alcoholic solution floats upon the heavier lye and at the place of contact there is formed, in the presence of acetone, a dark red ring. The test is exceedingly delicate, showing the presence of one-millionth of a gram of acetone in 8 c.c. of urine. It has practically no source of error since none of the other normal or pathologic constituents of the urine, above all not diacetic acid, will give a positive reaction. It can safely be done with the undistilled urine, in which respect it surpasses Legal's and Lieben's test.

Collo's⁸ test for acetone depends upon the property of this substance of being converted into acetic acid by means of oxidation. To 5 c.c. urine add 2 or 3 drops of a 5 per cent. solution of ferrous sulphate, 5 drops of dilute sulphuric acid and a few c.c. peroxide of hydrogen. Warm gently, add 15 to 20 drops concentrated sulphuric acid and warm again. Acetic ether is produced and may be recognized by its characteristic odor. If acetone is present only in traces the urine

must be distilled with dilute sulphuric acid and the distillate used, otherwise the test may be applied to the urine itself.

A useful modification of the usual indican tests has been contributed by Guerber⁹. He substitutes a few drops of a 1 per cent. osmic acid solution for the calcium hypochlorite. The test is sufficiently delicate and more reliable than those hitherto used, since an excess of osmic acid does no harm.

Maione¹⁰ protests that not sufficient diagnostic use is made of the search for typhoid bacilli in the urine. The recognition of the bacilli under such circumstances is comparatively simple. They often can be found in the second week of the disease and occasionally precede the appearance of the Widal reaction.

BLOOD. As the result of leucocyte counting in a very great number of individuals, Kjer-Peterson¹¹ has found that the blood of healthy men is "homogeneous," i. e., that under the same circumstances it always contains approximately the same number of leucocytes. The blood of women, on the contrary, is "non-homogeneous," since even in health the number of leucocytes varies greatly. The leucocyte count would thus be of considerably more diagnostic significance in the former than in the latter.

C. Zeiss in Jena has put on the market a new counting chamber according to the designs of Buerker¹², which obviates many of the faults of the old Thomas-Zeiss instrument. The chief point of difference lies in the fact that the new counting chamber has two capillary grooves in the glass platform upon which the cover-glass rests, one on each side, so that the interior of the chamber communicates with the outer air. The cover glass is first carefully laid on, good Newton's rings being obtained. The diluted blood is then allowed to flow into the chamber through one of the grooves by means of capillary attraction. In one form there is no field engraved upon the central elevation, the count being made by means of an eye-piece micrometer. In the other, more suitable for clinical work, there is a series of engraved squares which however have an area of 9, instead of 1, square millimeters. The advantages are obvious. The cover glass can be more accurately adjusted to the slide; the blood is distributed more uniformly; the counting chamber is independent of barometric pressure; the large counting field makes the estimation of leucocytes more accurate. A large series of careful counts¹³ has demonstrated the utility of the new instrument.

A noteworthy contribution to the technique of hemoglobin estimation has been made by Gruetzner¹⁴. His new hemometer is in general constructed on the lines of Fleischer's instrument. Instead of a

colored glass prism, however, the new hemometer has a hollow prismatic glass container which is to be filled with the blood to be examined, diluted 100 times. Near the apex of the prism the blood has thus a very pale color, growing darker as the base is approached. For comparison two gelatine plates stained with picro-carmin are supplied, one having the color of normal blood diluted 100, the other 200 times. The point on the prism at which the diluted blood has the same color as one of the plates indicates its hemoglobin content. The instrument is said to be accurate and easily handled.

Giemsa's¹⁵ modified stain is in some ways superior to his earlier formulas both for blood work and for staining the spirochaeta pallida and other micro-organisms. He recommends: Azure II-eosin 3 grams, azure II 0.8 grams, glycerine and methyl-alcohol each 250 c.c. One drop is added to each c.c. of water and the spreads are stained in this solution 15 to 30 minutes. They may be fixed in methyl-alcohol of 2 or 3 minutes or in a 10 per cent. alcoholic solution of formol for 10 seconds. The stain is said to keep well.

A useful modification of Jenner's stain has been worked out by Tiedemann¹⁶. To a 1 per cent. solution of methylene blue (Hoechst) in pure methyl-alcohol, add an equal amount of a 1 per cent. solution of eosin (Gruebler) in the same solvent. The mixture is ready for use at once and keeps indefinitely. The blood spreads are stained with this as with Jenner's stain, with which it is practically identical. Its superiority over Jenner's stain lies in the ease of its manufacture and the certainty of its results. Like Jenner's stain it is also useful for bacteriologic and other purposes. For malarial blood the following modification is advised.

Take 10 c.c. 1 per cent. solution methylen blue in pure methyl alcohol.

10 c.c., 1 per cent. solution eosin in pure methyl-alcohol.

20 c.c. pure methyl-alcohol.

Add to this one drop aq. ammon. fortior. Place in incubator or carry in inside pocket, for a few days.

Stain one minute, add 3 drops of water, let it act for 3 minutes and wash thoroughly. This produces very nearly the effect of Wright's stain.

Nattan-Larrier and Bergeron¹⁷ have increased the possibility of finding tubercle bacilli in human blood in cases of miliary tuberculosis. They dilute 10 c.c. of blood with 200 c.c. of distilled water. This destroys the red blood corpuscles promptly. The diluted blood is then centrifugated, with or without a preliminary sedimentation, and stained spreads made with the sediment in the usual manner. The bacilli stain well and are more readily found than with other methods.

EXUDATES. The attempt to diagnose the nature of pathological diseases producing sero-fibrinous exudates by means of the examination of the fluid withdrawn, has attracted considerable attention in the course of the year. One of the routine methods of distinguishing between exudates and transudates has been the estimation of the specific gravity of the fluid. The latter is always distinctly higher in exudates than in transudates. Englaender¹⁸, however, has pointed out that, as usually performed, the determination of the specific gravity of an exudate is subject to a serious source of error. The aerometers are almost all graduated so as to be correct at room temperature. If we wait for the warm fluid to cool, it undergoes two changes. The cellular elements sink to the bottom, and the fibrin goes out of solution on account of its coagulation. The aerometer accordingly registers a much lower specific gravity than should be the case. He advises the use of an instrument, constructed according to his directions, which is accurate at 36 degrees C., whereby it becomes possible to take the specific gravity immediately upon the withdrawal of the fluid.

As regards the value of cyto-diagnosis in exudative pleurisy, N. Kuschew¹⁹ confirms the cytolytic formulae of Widal. In 11 cases of primary tuberculous pleurisy, the exudate contained a great excess of lymphocytes with a greater or smaller number of red blood corpuscles. In 4 cases of secondary tuberculous pleurisy, a lymphocytosis was found in the exudate in three cases, whereas the fourth showed an excess of polymorpho-nuclear cells. Six cases of non-tuberculous pleurisy showed an excess of polymorpho-nuclear cells, whereas 3 cases of mechanical transudation showed chiefly endothelial cells. These results indicate the diagnostic importance of a lymphocytosis in the fluid withdrawn, for the diagnosis of a tuberculous affection. Vander Meer²⁰ on the other hand expresses himself more guardedly. He reports 23 cases carefully observed and concludes that while a tuberculous exudate nearly always contains an excess of lymphocytes, not every lymphocytosis in an exudate indicates a tuberculous lesion. The diagnostic, though perhaps not the pathognomic, significance of such a lymphocytosis seems fairly well established.

However great the diagnostic importance of such a lymphocytosis, the actual finding of tubercle bacilli in the fluid is obviously still more decisive. Unfortunately the difficulty of this examination is quite equal to its value. Vetter²¹ advocates the following method. Into a large culture tube is placed a slice of potato 4-5 cm. long. This covered by 8 c.c. of a fluid containing 1 per cent. peptone, $\frac{1}{2}$ per cent. salt and 10 per cent. glycerine. The whole is sterilized. If an equal quantity of a tuberculous exudate is allowed to flow into this culture medium, the tubercle bacilli will form colonies on the potato as well

as in the meshes of fibrin that separate out. By this means he was able to demonstrate the bacilli in 9 out of 10 cases of exudative pleurisy, whereas animal experiment gave a positive result in only 6.

BACTERIOLOGY. Of the many advances in the field of bacteriology, which will be discussed in another department, it is above all the improvements in the technique of the Widal reaction that concern the clinician. It has become more and more clear that it is not necessary to work with live cultures of the typhoid bacillus but that perfectly good results can be obtained either with cultures killed by the addition of formalin or with suspensions of comminuted bacilli such as "Ficker's Diagnosticum" prepared by Merck. The latter especially seems to be growing in favor and enables every physician to perform his own agglutination tests. There have recently been put upon the market, by the same firm, similar suspensions of the two kinds of paratyphoid bacilli, so that the practitioner is enabled to make a Widal test in paratyphoid as well as in typhoid fever. The only disadvantage of this method is that a somewhat longer time is necessary for the production of agglutination than with live cultures. On the other hand one has one's reagent always ready. It is moreover becoming steadily more evident that agglutination must take place in higher dilutions of the serum, than has hitherto been customary, in order to justify the diagnosis of typhoid or paratyphoid fever. A positive result in a dilution of less than 1 to 200 should not be considered decisive. To be sure the insistence upon such high dilutions will often make the method fail to give positive results in typhoid fever, especially early in the disease; but on the other hand there will be fewer cases in which an agglutination in a non-typhoid condition leads the observer astray.

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- Note: All the above journals were issued in 1905.

THERAPEUTICS.

IN CHARGE OF

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In the past year two interesting methods have been proposed of solving the problem of immunization against tuberculosis.

Spengler¹ has shown that Behring's method of immunization of cattle against infection with the bovine tubercle bacillus by inoculating them with cultures of human tubercle bacilli, is equally effective, when reversed, for human individuals, and for patients already infected. On investigation he concluded that when inoculation with cultures of the bacilli was performed, the time required for immunization was too great, and therefore employed bovine tuberculin (P. T. O.) He found that injecting into patients tuberculin derived from bovine tubercle bacilli produced very little reaction of any sort, as compared to human tuberculin, and that they produce a much higher power of agglutination in the blood serum of individuals so treated than that obtained with the human tuberculin. He used the agglutinating power of the serum as an index of the degree of immunity or resistance produced. During such treatment the number of bacilli in the sputum rapidly decreased, the general symptoms improved. He makes no report as to the final results in any given case, but regards the method he proposes as efficient in increasing the resistance toward the disease of individuals already infected, and as a vaccine against the disease in healthy individuals.

The second method is that which has recently been announced by v. Behring² at the International Tuberculosis Congress at Paris. This announcement simply presents the reasoning by which v. Behring arrived at his conclusions, and states that no clinical confirmation on human individuals has been attempted. The residue of the tubercle bacillus remaining after successive extractions with water, 10 per cent salt solution, and with alcohol and ether, is a substance which causes, when injected subcutaneously, the formation of tubercles, which become caseous, but do not break down and eventually are absorbed. This substance v. Behring names "T. C." It is harmless and incapable of propagating the disease. v. Behring imagines that this substance is taken up by the cells of the body and there is changed into or gives rise to a second body substance, "T. H." which is the "cause of the sensitiveness of the infected individual to tuberculin, and on the other hand is the cause of curative cell activity in opposi-

tion to the tuberculosis poison." Essentially, therefore, v. Behring has obtained a tuberculin freed from substances which produce injurious toxic effects, which produces a prompt immunity against tuberculosis. What the results of the clinical application of this substance may be, remains to be seen. The reports on the use of Marmorek's tuberculosis antitoxin give conflicting and not very definite results.

The attempts to obtain an effective serum against pneumonia, inaugurated by the Klemperers in 1891, have recently been revived by Roemer of Wuerzburg. He has produced a serum consisting of a mixture of serum obtained from horses, cattle, and sheep which have been immunized against a great number of different strains of the pneumococcus. The new step in this procedure is that a greater variety of specific immune bodies has been provided, which increases the variety of complements to which the serum may be applicable in the blood of the patient immunized as well as the number of strains of pneumococcus with which it may combine. The serum is bactericidal, and not anti-toxic. Paessler,³ Lindenstrom,⁴ and Knauth,⁵ reporting thirty-five cases in all, have found an almost invariable reduction of temperature, but most important a great improvement in the circulation. The pulse became fuller and of better tension, the cutaneous circulation better, and in four instances an oedema of the lungs promptly disappeared after an injection of the serum. No change was observed in the pathological process in the lung, in the usual frequency of complications, in the number of leucocytes, or in a hastening of the crisis. No untoward effects were observed. The efficiency of the serum may be summed up in Paessler's words, that while "its action is uncertain and in most instances incomplete, it is still far superior to any other therapeutics means we have which is directed against the infection itself." It may be used particularly in severe infections and should be given early. The general impression of the results obtained is very encouraging. Knauth, furthermore, reports very favorable results in pneumococcus infection of the cornea, which in 80 per cent of the cases yielded, without further local treatment, to subcutaneous injections of the serum.

The intraneural injection of tetanus antitoxin, the experimental proof for which was so well carried out by Meyer and Ransom in 1904, has been further developed, rather boldly it is true, but very logically by Rogers.⁶ He proposes the injection of small quantities (10 to 30 minims) of antitoxin directly into the spinal cord, introducing it by means of a needle and syringe, by a method analogous to lumbar puncture. He recognizes the danger of the procedure, and considers it justifiable only in desperate cases. It is an attempt to neutralize the

toxin more quickly than is possible when the antitoxin must travel into the cord from the nerve.

The site of injection depends partly on the point at which the nerves from the locality of the wound enter the spinal cord, and should always be placed above this. The second consideration is the protection of the respiratory center, especially against exhaustion, and for this purpose the injection should be made as near to it as possible, that is into the lower cervical cord. The needle is to be introduced as in lumbar puncture, but should be carried forward through the cord until it strikes the body of the vertebra. It should then be withdrawn a short distance, and the injection slowly made. Rogers has seen no serious subsequent disturbances of nerve function as a result of this. The possible rupture of blood vessels is a question never to be lost sight of.

In the past year the value of Moebius' antithyreoidin in exophthalmic goitre has received very widespread confirmation. It has shown itself to be by far the most successful attempt yet made to produce a serum to combat thyroid intoxication. It is obtained from the blood of sheep drawn six weeks after extirpation of the thyroid. Injected subcutaneously it proved to be entirely without value, and frequently resulted in abscess formation at the point of injection. Given by mouth, however, it has been followed by very encouraging results. Nine cases have been reported in the past year by Thienger¹² Hempel⁷, Peters⁸, Lörner⁹ and Duerig¹⁰. In one case no improvement occurred. In the remainder there was a reduction of the pulse rate, and an improvement in the general circulation, in the size of the thyroid and its consistency, and improvement in the tremor, in strength, and in the subjective feeling of well being. In most cases this improvement continued only during the administration of the serum or for a short time afterwards. Duerig, however, reports a case in which improvement was maintained for six months, after an administration of the serum for a period of four months preceding.

Christens¹³ has used with equally favorable experience the dried, pulverized blood of thyroidectomized sheep, instead of the serum, administering it by mouth as in the case of Moebius' antithyreoidin. It must be recognized that antithyreoidin and the dried blood as used by Christens are purely symptomatic remedies, and that as far as experience has shown they give only temporary results. Even though temporary these results have, however, justified its use. Aside from occasional nausea and feeling of aversion, it produces no untoward results except when grave circulatory disturbances have made their appearance, especially myocarditis, when it undoubtedly adds to the gravity of the case and is strongly contraindicated. Eulenberg¹¹ reports seven cases treated with Moebius' antithyreoidium, in five of

which the general condition, at least, was greatly improved. He considers the serum a distinctly helpful palliative measure, but he does not feel justified in letting it replace the dietetic and physical methods of treatment which should be carefully adhered to.

The already rich but inefficient therapeutics of gout has received a promising addition from pharmacology, which is based on the recent studies in the metabolism and physiological chemistry of uric acid. Having shown on experimental evidence that the uric acid in the blood of normal individuals is in all probability combined with thymic acid. Schmoll¹¹ has demonstrated that in gouty patients two abnormal metabolic processes occur; first, that some of the uric acid in the circulating blood of such individuals does not combine with thymic acid, and is not excreted in the urine, but accumulates in the tissues; and secondly, that in these patients in addition to the uric acid that is formed from the nucleins in the food and the disintegrating body cells as in normal individuals, uric acid is obtained from the paranucleins. The uric acid from this source also remains uncombined with thymic acid and increases the total quantity of uncombined acid, which is not excreted. On this evidence Schmoll administered thymic acid by mouth to thirty cases of gout with excellent results. The quantity of uric acid is uniformly increased above the normal, or the additional quantity to be expected from the quantity of nucleins known to be in the food, and remains so as long as any uncombined acid is present. This period is usually about ten days. The patient feels unusually well, the swelling in the joints decreases, and motion in the affected joints becomes less painful and much more extensive. In the only acute attack treated the pain and swelling disappeared in six hours. The dose of thymic acid given was three grains four times in twenty-four hours. A larger daily dose usually produces gastric disturbances, and inflammation about the local deposits of uric acid.

The results of the treatment of leukaemia by the Roentgen-ray have been made no more definite than in the foregoing years. A study is necessary of the ultimate out-come of the treatment at longer periods than have heretofore been allowed to elapse. Beyond the changes which occur in the blood, very little attention has been given in published cases to reparative changes in other tissues, and to the return in leukaemia patients to the normal metabolic processes, all of which will be necessary to solve the problem of the nature of the influence of the Roentgen-rays on the disease and to determine accurately the efficacy of the treatment. It undoubtedly gives more prompt results than arsenic, can be more accurately applied than the various injection methods, and is easily administered. It has, however, its dangerous side and is not to be employed indiscriminately. Symptoms of

general intoxication frequently follow its use, presumably due to the rapid production of toxic material as the result of the rapid cell-destruction; such intoxication is frequently accompanied with a serious aggravation of the patient's condition. Secondly, the danger from burns and dermatitis is not insignificant on account of the frequent exposures over a long series of days. Cases of short standing appear to yield much more promptly, and with a better prospect of permanent results than old cases, in which intoxications are more frequent, and which often pursue an uninterrupted downward course. It seems that the treatment in cases which are recognized early may be more effective than it has hitherto been. Nothing has appeared in the past year to alter Dock's¹⁵ statement that "in no case has observation been carried out long enough to speak of cure; in several cases death has occurred while the symptoms seemed to indicate improvement; no stronger claims can be made for it than can be made for arsenic and certain serums and bacterial toxic substances.

Roentgen rays have also been used with good results in one case of Addison's disease¹⁶, which had yielded a positive tuberculin reaction. Both kidney regions were exposed from the anterior surface for short periods in twenty-five successive days. An immediate improvement followed and after a second course of twenty-five exposures the patient was able to return to his former duties.

It may be well to speak of the intravenous methods of administration of several well known drugs, especially sodium salicylate, digitalis and potassium iodide. Sodium salicylate has been used intravenously by Mendel¹⁷ more than two thousand times in cases of rheumatism both acute and chronic, and has given brilliant results. So administered it relieves the pain and effusion into the joints promptly and certainly, serves to differentiate the chronic cases of true rheumatic infection from other forms of arthritis, and is not followed by its usual disagreeable systemic effects. As the method is accompanied by the ordinary risks of intravenous injections, it should be used with a due appreciation of these, and therefore, only in cases which present a lack of tolerance for the drug when given by mouth and in those which do not improve but tend to become chronic. Mendel thinks that if administered under strict aseptic precautions, with care in expelling all air from the syringe, and using a sharp needle, that the risk is reduced to very small proportions. He uses a sterile solution of sodium salicylate 8.75 grams, caffeine 1.25 grams, in 50 c. c. of water. Two cubic centimeters form a dose for the adult, but as much as 4 c. c. may be used in severe cases. The injections may be made into any of the larger superficial veins, but usually the median cephalic or basilic vein at or near the elbow is preferable. Brugsch,¹⁸ in repeat-

ing Mendel's work, has in a much smaller number of injections (17 cases) had less satisfactory results, particularly in cases of acute rheumatism.

More recently Mendel¹⁹ has also experimented with digitalis given intravenously. For this purpose a preparation of digitalis must be used which contains no alcohol, and the least possible amount of other irritant substances. The various active principles which have been isolated from digitalis leaves cannot replace a preparation of the crude drug because their action represents only a part of the digitalis effect. The intravenous injection permits an accurate dosage, and produces its effect within a few minutes, in contrast to the incomplete and slow absorption of digitalis from the alimentary tract. Mendel used digitalone in doses of 2 c.c. (equivalent to 0.2 grams of digitalis leaves) at an injection. This dose produces its maximum effect in a few minutes, which then gradually subsides in the course of twenty-four to thirty-six hours. A prolonged effect requires repeated injections at intervals varying from twelve to forty-eight hours as may be demanded in the individual case. As in the case of sodium salicylate, the injections are to be made into the veins at the elbow, under strict aseptic precautions. They are not to be used ordinarily but are indicated when the drug by mouth produces gastro-intestinal irritation, is poorly absorbed, when it is desirable to avoid any gastro-intestinal disturbance, and when a prompt digitalis effect is imperative.

Doevenspeck²⁰ reports very prompt improvement in cases of intense syphilitic infection following repeated intravenous injections of potassium iodide in doses of 2 c.c. of a 5 per cent. solution (equivalent to 1.5 grains). The indications for its use are grave symptoms which are too slowly influenced by the ordinary methods. The reported cases (four) consisted in (1) excruciating nocturnal pain, (2) very extensive secondary eruption with ulceration, (3) rapidly progressing tertiary ulceration of bone and mucous membranes, (4) tertiary lues of the nervous system. The injections were repeated daily. Their immediate object, that is, a limitation of the rapid progress of the disease, was attained with one or two injections in 24 to 48 hours. Poisoning or development of an iodide eruption was not observed.

The most serious advance in therapeutics in America—we say this advisedly though, perhaps, not in the usual sense—has undoubtedly been the now very general discussion and agitation against the American evil of nostrum-vending, and quite significantly this piece of investigation has been the layman's research, especially in unearthing the methods and propaganda of the nostrum vendors. Full credit and honor are due the *Ladies' Home Journal* and *Collier's Weekly* for their courageous step in publishing the facts. The

American Medical Association and its *Journal* have organized in its Council on Pharmacy and Chemistry an efficient instrument for investigating the multitudinous proprietary medicines. The individual practitioner does not have the facilities or time to investigate the merits and claims advanced for each manufacturer's product, and as there are dishonest and incompetent men engaged in the marketing of pharmaceutical products as in all other fields of human endeavor, the work of this council on pharmacy, properly administered, will render a great service to the profession and to honest pharmacy.

Three series of facts have been brought out by the various investigators. First, the positive demonstration of misrepresentation in regard to the ingredients of many secret remedies; secondly, that some of these products are not even uniform in their composition, the formulæ being changed from time to time, in some instances these changes being so radical as to produce totally different physiological effects, and thirdly, the exposure of the contracts by which the nostrum manufacturers silence the newspapers, through which they compel legislation favorable to themselves.

Of the first series, the most complete knowledge we have is in regard to the alcoholic nostrums and the acetanilid mixtures, many of the latter pretending to be synthetic products. Among the alcoholic nostrums which have heretofore been lauded by temperance workers we may mention Lydia Pinkham's vegetable compound which contains 20 per cent. of alcohol, Paine's celery compound which contains 21 per cent. alcohol, Ayer's sarsaparilla with 26 per cent., Peruna with 28 per cent., Parker's tonic, "purely vegetable," 41 per cent., etc.²¹—all these as compared to the much abused beer with a maximum of five per cent. of alcohol. Those of the acetanilid mixtures which are misrepresented as synthetic products are equally flagrant ethically, but are also more immediately dangerous in that an overdose is more easily reached in point of quantity, and a recognized proportion of individuals present an insurmountable idiosyncrasy against the drug, even when it is most cautiously given. But most important is the direct deception which is practiced in the advertisements in which, as in orangeine, an effect is claimed for the remedy which is directly opposed to the true effect, namely that it "strengthens the heart and produces better blood," while it is really a heart depressant and a blood destroyer, and in general the claim of "not dangerous" is false, and mixtures of acetanilid should be plainly marked "poison."

The development and present status of the propaganda of the nostrum venders has been accurately traced in *Collier's Weekly* for November 4th, 1905, which we suggest that every physician read for his own information and for that of his patients. The outcome is that

most of the newspapers of the United States are under the complete control of these people by virtue of a contract which prohibits any adverse criticism, editorially or otherwise, on the part of the newspaper or its contributors, and also serves as a cudgel by which these papers can be made to throw all their influence against adverse legislation in regard to patent medicines. The medical press as a whole has not manifested great enthusiasm in support of the attitude of the American Medical Association and its council on pharmacy and chemistry. We hope this position is not to be construed as an opposition to the movement toward bettering these conditions.

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PATHOLOGY AND BACTERIOLOGY.

IN CHARGE OF

CARL FISCH, M. D.

The purpose of this annual review cannot be the enumeration of the single items contributed during the year to pathological literature. The space would not allow it, nor would any benefit be derived by the reader, who wants to know more about the general development and advance of pathologic problems than of the detailed work that has led to them or, more often, remains for the present sterile for want of knowledge of how to utilize it toward the solution of greater riddles. The same obtains for bacteriologic literature, that, in its entirety would be tiring, but allows of comprehensive discussion with profit. For that reason my list of references will be curtailed, but sufficient to make easy the access to the sources, if more complete information is desired.

In pathology as well as in bacteriology the past year has brought one important change, and that might be called a negative one. In both of these branches of medical science the judgment has become more sceptic, and enthusiastic hypotheses find less and less applause. In many cases detail work has undermined theories that were not doubted before, with the consequence that while on the one side a void is created, on the other a wide new field of research has been opened, promising in time to replace the lost theory by one more firmly based. This applies especially to bacteriologic problems, and we shall have to deal with some of them.

A great deal of work has been done in experimental pathology, but except certain publications on tumor-experiments, none of it has opened new views or facts. How fruitful the consideration of this work, however, can be for pathology is beautifully shown in a work that ought to be widely known, the "*Processus generaux*" of Chantemesse and Podwysotsky¹, as well as in Lubarsche's latest book². Both of these books are unique and outline in a way the problems of pathologic research that excels in clearness everything written before. They form the most important addition to our literature and will make the methods of pathologic research less liable to redund in incoherent and isolated results.

Of all the pathologic problems, the tumor question has held the front rank in importance, and it seems that in some directions at least

a unison of opinion is preparing. This obtains, in the first place for our ideas of the mode of growth of a tumor, or, more specifically, the question: Can normal tissue cells become tumor-cells? There are many that hold to a positive answer, the foremost of them, Hauser³, who very lately again has emphatically insisted on the direct observation of this process. As is well known Ribbert⁴ had shown how many sources of error were necessarily involved in the establishing of this fact, and in many cases, where they could be overcome, he invariably arrived at the result that a transition of normal cells into tumor cells never occurred, that the tumor grows always out of itself and that each of its cells is a derivative of the original tumor cells. His observations were extensively confirmed by Borrmann for skin carcinomata, as reported last year, and since then more attention has been paid to this point in the examination of tumors. In all the cases reported, the attempt to demonstrate such a transition has failed, tissue cells never became tumor-cells, but were always passively eliminated by the tumor. If we consider the difficulty of obtaining material for these investigations and the great number of deceptive appearances met with in them, the evidence brought out is conclusive. On the other side, it has never been shown that such a transition from tissue to tumor-cells really has occurred; while we know that many processes of growth may suggest such an interpretation. This negative experience together with the positive evidence of the other side has turned the trend of pathologic opinion almost everywhere, and conceptions like, for instance, that of a carcinomatous degeneration of epithelium begin rapidly to disappear, although we will see them yet for many years in our text-books.

The intrinsic importance of this fact that has widely impressed itself during the last year lies in its consequence as far as the search for the origin of tumors is concerned. It is, that we will never be able to judge about it from the tumor itself, since we know that it grows only by multiplication of its own cellular material, that the surrounding tissue cells remain passive or sometimes even offensive, as Orth⁶ lately has demonstrated in some cases on epithelioma. This logical consequence led Borrmann to his classic work on the skin cancers: seeing the necessity of selecting the youngest possibly obtainable new growths to elucidate the phenomena of the origin, his attempts were baffled by the observation that even the minutest of them showed the typical tumor structure and had no connection whatever with the surrounding tissue, tumors, the cross-section of which figured only about 39 cells. His observations have been ridiculed by Hauser and others to no avail. On the other hand, the conclusions he was bound to draw

from his researches have been confirmed for the adeno-carcinomata of the intestine, of which Markwald⁷ has given a very lucid and very convincing instance. He found under the submucosa minute carcinomata of the usual structure, without connection with muscosal epithelium. Similar experiences have been those of Oberndorfer⁸ with the intestine and of Goebel⁹ with the bladder. The great difficulty in procuring material of this character is obvious. These smallest tumors are only found accidentally; it is certain that systematic search in regions, with predilection the producers of tumors, would reveal a greater frequency. The systematic examination of the region of the naso-labial folds in fetus and infant would be sure to discover still younger tumors. As it is, the results so far obtained must convince us that even by this method the origin of tumors will not be cleared up. We have to be confident that even smaller tumors than those described by the authors quoted will be perfect tumors and will not show any transition to or from the neighboring cells. The origin of tumors will not be solved by the examination of even the smallest new-growths.

This leads us to the modern ideas about the possible sources of tumors. They have found an adequate and many sided discussion in the extensive cancer discussion in Berlin last year¹⁰. Without entering into the different opinions and theories expressed at that meeting that were not new and that were generally known, we may draw the facit of this great attempt at advancing our positive knowledge as nil. Nothing was said to add important facts to the various theses so often written about and discussed. Nevertheless this negative result represents the stage of our knowledge or ignorance and strongly emphasizes the necessity to search in directions that are accessible and at the same time very promising. The only theory that can not on any positive facts be rejected is that emanating from Cohnheim's genius, attributing the genesis of tumors to the separating off of embryonic cells from their normal relations. The basis for the theory is absolutely founded; we know that such displacements occur; we can demonstrate them and can demonstrate the places where they occur with predilection during the fetal development. We further know that certain tumors offer an absolute impossibility of other explanation but that of a fetal misplacement of cells or tissue-complexes. If we find a complex tumor, a teratoma with brain tissue, long tracts of intestine, skin and bone, like B. Fischer¹¹ has described it, under the skin of the lower leg, the last resistance against a displacement in one and the same embryo must arise. Such a tumor must have been present in its anlage before the little bud forming later the leg began

to protrude; there are no folds there in which an inclusion could have lodged, it can not have been there before the protrusion began; the cells forming the anlage must have been dislodged in the very earliest stages of egg-division. Other teratomata, especially those containing tissue identical with that of the fetal envelopes, sometimes malignant and metastasizing as chorion-epithelioma over the organs of the adult male organism follow directly in the line as was shown by Wilm's beautiful work, so that it is merely a matter of logic and close observation, to establish a series of tumors, characterized in their individual types by the tissues and location of the displacement of their anlage. The theory is very simple and with the refutation of the tumor formation by involvement of normal tissue the last positive objection against it is removed. The theory of tumors arising from fetally displaced cells is looked upon day for day more favorably; the material indirectly in its support accumulates constantly. It will be the object in the future of experimental investigation, especially since through the latest work of Pick ¹² a hope is given to obtain material for it. His investigations on a thyroid carcinoma in fishes of the group of salmonidae that in some cases comes in what has been called endemic form, are giving a good prognosis for the possibility of such work. At the same time it must be repeated, what was said before, that the origin of tumors will not be discovered by the study of tumors, but by direct experiment and by the search in the fetal organism for their primary formation.

The great amount of work that has been done in various countries on the study and transplantation of animal carcinomata has cleared to some degree many phases of the problem. It has been shown by these investigations also that the transplanted tumor-tissue itself only grows out and never converts the cells of the inoculated animal into tumor cells. In all of the morphologic and biologic points of the results obtained in this country and in Europe a perfect agreement exists. Of possibly great value are the observations published by Ehrlich in his biologic study on mouse carcinomata that may lead to clearer views on the greater or smaller virulence or malignancy of these new growths and may altogether give an explanation for the character of malignancy. The reports of the different cancer institutes and laboratories, except that of the New York Institute, are uniform in their conclusions and careful critic. They have done a great deal to bury finally the parasitic theory, based on the presence of cell-inclusions.

It remains only to touch a biologic objection to the embryonal origin of tumors, the assertion that it is impossible for cells to lie dormant for sometimes many years and then begin to multiply and to form tumors. On the basis of observations on protozoa Hertwig¹⁷ has

compared certain changes in carcinoma-cells with those seen by him in consequence of nutritive changes in actinosphaerium. He attributes them to an interaction between the cytoplasm and the nuclear substances, so that by over nutrition of one or the other hypertrophic enlargement and expulsion of the surplus takes place. This, too, is the cause of proliferation of tumor-cells, and by bringing cells under the influence of overnutrition they are enabled to form newformations. He insists that no analogy or proof exists for the dormancy of embryonal cells and does not mention that certain tumors begin to grow often as long as 40 or 50 years after the birth of the carrier, that consist entirely of not only embryonal cells but also of embryonal organs. Hertwig's objection is altogether theoretic and not based on any positive observation. A great number of pathologic phenomena speak absolutely and directly against it.

There are few things in the literature of the last year that directly have enabled us to advance in our methods to solve pathologic problems. One of the most important is Mallory's¹⁸ discovery of a new connective tissue constituent, which he called the fibroglia, forming delicate fibres in intimate relation to the cytoplasm of the connective tissue cells, like the fibres of the neuroglia to the glia cells. Similar fibrils are constant constituents of smooth muscle tissue, here called myoglia. They are found only under certain conditions and certainly have an important role in the development of the connective-tissue system. Pathologically their study is a valuable adjuvant in many difficulties that often obtain in the identification of certain cellular elements. Mallory has utilized them for the grouping of mesodermic tumors, although it must be admitted that our knowledge of their distribution and function is as yet very limited. The methods of demonstration suggested by Mallory are very effective and will greatly facilitate further study.

The morphologic investigation of the pathology of the blood-forming organs has not advanced except in small details. The greater frequency with which they lately have been made the object of study has rather influenced, in a negative way, the doctrines held as proven. In fact, there is hardly one side of the problem upon which a consensus of opinion is brought about. The origin, formation and changes of the blood-cells is as yet obscure in spite of the many attempts to find them. This brings with it the uncertainty about the relation of the different forms of cells to each other and thereby has given rise to interpretations totally opposite to each other. That in many cases the personal belief is deciding is clear, so that it is nearly impossible to pull out the nucleus from the shell. Pappenheim's¹⁹

Atlas will not help to do away with the confusion; it simply represents the author's thoughts about the subject. The great fight on the genetic connection between mononuclear and polynuclear leucocytes is far from being ended, although we cannot but feel that the tendency is in favor of Ehrlich's older views than of the schools teaching that both classes of cells are derived from the same source and that gradual transmutations occur. As a matter of fact such transitions have not been observed, the very reason that the discussion can not close. Observations like those of Weidenreich²⁰, that for instance eosinophilous cells are formed from lymphocytes by the ingestion of hemoglobin, are so improbable that they cannot be considered. These very cells have lately been the object of experimental study that at least has brought out their specific reaction in the animal organism. Proescher²¹ has succeeded in producing artificial eosinophilia by using the injection of tapeworm extracts. Much more exact, however, are the studies of Opie²², who, in producing trichinosis in guinea pigs, carefully followed up the development of that condition. The infection must result in some influence necessitating a greater supply of these cells, perhaps it acts on the bone-marrow, that shows an enormous overproduction of the eosinophilous elements. That, besides this, other factors must be at work, is shown by the local accumulation of these cells in certain viscera in the form of eosinophilous abscesses. The same occurs in human pathologic processes and was lately described to have existed to an extraordinary extent in an uterine tumor. As essential for these local eosinophilias must be mentioned the absence of neutrophilous elements, thus clearly showing that the stimulus is specific for the former. With the fact that artificial eosinophilia can be produced a field is opened for greater elucidation of many questions in hematology.

The subject of arterio-sclerotic changes has had much attention. As far as its pathologic character is concerned nothing new was developed. It had in another direction a great effect in combining with it the question of the nature of chronic nephritis. This disease has been dealt with for centuries as a primary disease of the kidneys due to chronic intoxication caused by faulty metabolism or katabolism. The effect was considered as a chronic inflammatory process, leading to scar formation and to atrophy and destruction of the secreting epithelium. Comparison of pathological and clinical observations were, however, so often absolutely contradictory that recourse was taken to the assumption, not of histologic, but of functional changes. These views have been changed, and chronic nephritis begins to be looked upon not as a primary change, but as secondary to changes

altering other vital organs of the body. Pathologically, the change has taught us that the histologic alterations of the renal structures are by no means always the expression or cause of functional symptoms clinically called nephritic symptoms. The number of kidneys found enormously diseased pathologically and never having caused during life a single nephritic symptom, has always been a riddle. The word nephritis, meaning, clinically, a chronic inflammatory condition, must be changed to a term generally comprising any disturbance of the secretory function of the kidney. Pathology should not conclude from the chronic nephritic changes on a chronic nephritis in the clinical meaning.

It is difficult to deal with the pathology of tuberculosis without involving the bacteriologic side. The pathology, therefore, may lead us over to the bacteriological summary. The general aspect of this subject has greatly changed during 1905, unexpectedly; from the formerly firmly held views, a certain insecurity has arisen. The impetus for this change was given by Behring's pronouncements of 1904 that, although generally not accepted in their totality and by different writers proved as untrue in all of their details, nevertheless caused investigators to deliberate as to whether ideas before held for expressions of truth were really based on reliable, well observed and accurately interpreted data. It was soon found that although they were true, they were not generally true; that we could not claim to be masters of the knowledge of tuberculous infection by adhering to these views in all cases. In the first place, the way of infection in the most important form, the pulmonary tuberculosis, was in most cases attributed to direct infection by inhalation, although for other forms other ways of acquiring the disease were recognized, and also even for certain varieties of pulmonary infection. Careful pathological observations (for instance Orth's) have demonstrated that the criterion for the primary pulmonary infection does not stand investigation, as it can be shown by observation and mainly by experiment, that a pulmonary infection is in the great number only the consequence of a previous infection elsewhere in the body, very often insignificant. The determination at autopsies of the place of primary involvement in individuals dying of pulmonary tuberculosis has been recognized as unreliable in the majority of cases. Pathologically we can very seldom determine that the lungs were primarily infected. The possibilities, nevertheless, which allow the inhalation of bacilli, later to be followed, in a circuitous way, by the pulmonary disease are not diminished by this change of ideas. We know already of a great number of ways (see Weleminski²⁵) in which the virus may pass from the air passages into

the system and finally find its place of predilection in the pulmonary tissue. Practically, then, the methods of prevention of inhalation are not altered in their importance. In fact, all evidence points to the fact that most cases of this form are due to the inhalation of bacilli. Behring attributed great importance to their ingestion as leading to involvement of the lymphatic mesenteric structures and from there to lung disease. To a certain degree he has been right, meaning, that before his assertions were made, the frequency of an intestinal primary infection was underrated. Careful statistics and examinations have shown that the number of cases in which such a primary intestinal infection preceded the pulmonary lesions are not so rare as was thought. They have, however, shown, too, that it is impossible to attribute to this mode of infection the origin of the majority of pulmonary infections. The inhalation or the bringing into contact with the lymphatic tissue of the mouth and throat still reigns supreme as the main source of infection. The opinions about the possibility that tubercle bacilli may make their entrance into the body without causing histologic changes at this point are just now clashing on each other. It was also mainly in consequence of Behring's theses that this subject has been investigated. While many facts point to such a possibility, others speak against it, and it must be admitted that the data on which the latter are based (Baumgarten²³) are derived from a more exact method of experimentation than those of the former. That the tubercle bacilli can pass the mucosæ without causing lesions, seems, a priori, probable and is in fact proven by pathological observations and by the experiments of Ravenel, Behring, Lubarsch and others. The question is closely connected with another one, namely the possibility of the bacilli entering and remaining latent for a shorter or longer period, an assumption that was strongly upheld, especially by Behring. Experiments made in this direction in Weichselbaum's²⁴ laboratory have made it very probable that this can occur and that the bacilli, at least for a certain period, can remain with the tissues without causing lesions. Under what conditions this happens and what the part of the tissue or the bacillus in it is, we do not know. Whether such bacilli are too little virulent to cause lesions and are resorbed gradually, or whether they may begin to multiply at a favorable time is difficult to determine. Although theoretically of high importance, the question has little practical bearing in dealing with tuberculosis.

The only question that has found its final answer this year is the etiology of tuberculosis. Koch's opinion on the pathogenic difference of human and bovine bacilli is generally accepted, although with great hesitation and dislike. Koch has never asserted a difference of spe-

cific character of the two forms of microbes, only a difference in their pathogenicity for the animal organism. That culturally and biochemically definite differences exist, which, even without animal experimentation, allow of distinction, is the great work of Theobald Smith²⁶. They are varieties or races of the same species, the pathogenic qualities being different. Under rare conditions an organism, ordinarily immune to one of these, may be infected, a cow may die from infection with human bacilli and a human being by the bovine variety. This occurs and must be considered in the summary of the history of human tuberculosis. That it plays only an infinitesimally small part in the totality of human tuberculous infection is the great addition that the year 1905 has affixed to our knowledge as secure property. It must not be mistaken as an apprehension of great danger from this source that the prevention of infection with bovine bacilli has been made a paragraph of the final summaries of the last Tuberculosis Congress at Paris, nor even the expressions of the German commission that prevention of infection with bovine tuberculosis is one of the measures in the fight against the human disease. If this commission had been allowed to give its personal opinion freely, they would have ranged the danger with that of other very rare infectious diseases. The condescension to such preventive measures is nothing but a sweetening of the pill that the adversaries had to take.

We have thus finally arrived at the established fact that the white plague is, in about 89 per cent. of the cases, transferred only from man to man. In regard to Behring's contrary opinions such a mass of important material has lately accumulated that they need not be seriously considered any more. The same obtains for his ideas of the long latency of the disease, culminating in the assertion that in most cases the infection dates back to childhood. This is certainly not the case, although it must be said that a general inclination exists to day to go back in the history of the single case, not to the beginning of the subjective or objective symptoms, but to the associations and habits of earlier periods. The period of incubation or rather of latency in many cases appears to be long.

We cannot close the discussion on tuberculosis without at least touching the subject of its congenital (often called hereditary) acquisition. The last year has increased our knowledge greatly on this question, so that the existence of such a condition cannot be called any more a curiosity, but one that deserves earnest exploration. Besides the reports on about 18 tuberculous infants, either born with patent tuberculous lesions or developing them within the first month of life, in which latter case the disease must be pronounced congenital on ac-

count of the lack of time for the development of the extensive lesions in the short period after birth; we must be thankful to Schmaus²⁷ for having directed attention to tubercular lesions in the maternal placenta. In a careful and tedious study of placentas derived from women suffering from tuberculosis, he has, in the majority of cases, found foci of tuberculous tissue, sometimes involving the fetal portions. A peculiarity of these lesions is their great richness in tubercle bacilli. The constant disturbance of the placental circulation leading to hemorrhages, etc., offer a favorable medium for the transmission. It is of importance also that these facts could be established in cases where the disease of the mother was of small extent, and that the bacilli in perhaps all tuberculous patients are at least sometimes circulating with the blood.

Methods to deal with the disease on the basis of influencing it by means of its bacterial nature have not yielded anything new, except the announcement of Behring, made in Paris. From the fragmentary and unsatisfactory, seemingly, at places, fantastic words of Behring, that thus far have reached us, no definite inferences can be drawn. It seems, however, from them, that the principle which he follows, is merely an improvement or a change of older methods, practically doing away with the inconveniences involved in them. Dead bacilli have been used before; perhaps Behring has succeeded to remove from them substances not necessary for immunization, but toxic and destructive. If this should prove to be true, the discovery would at least permit of experiments with safety on human beings. What the result of such experiments would be, would take a number of years to determine. It is impossible to form definite ideas about what Behring claims to have found.

The investigations of the phenomena of immunity have again consumed the greater part of the work done in bacteriologic lines. It would be utterly futile and useless to do justice to it by detailing it in a page or two. What can be done is to try to make clear to what end this work has lead or will lead. Its center has been and will be for a long time Ehrlich's side-chain theory, a theory that not only tries to explain the presence of immunity, the successful or unsuccessful fight between host and parasite, but has thrown its weight into the widest-reaching biologic problems. The wonderful force of this theory is shown by the unearthing of biologic relations formerly hardly guessed at; its admirable ingenuity is proven by the immense number of absolutely new facts that have been brought together by it. The seeming easiness with which all of these facts could be fitted into the range of the theory has been fascinating to such a degree, that by many it

was believed to be the final truth. Ehrlich himself has never believed it, he is too wise a man to believe that the human brain could go to the deepest depths of nature's work. He himself has often and often insisted on the heuristic value of his theory to be a means to discover new facts, and, when finding that they contradicted the theory, to stimulate the production of other hypotheses suggesting a solution. While Ehrlich's ideas were directed by the laws of chemistry in a restricted sense, he always paid attention to the multiformity and obscureness of biologic processes. As far as he could, by conscientious attempts, bring his observations into the range of chemical and physical laws, he will never be contradicted. The chemical complexity of the diphtheria toxin stands firm against all the attempts to explain it by the laws of physical chemistry or to compare it with the behavior of colloidal solutions. It is true that in some difficult problems, the way out, although exceedingly original and ingenious, was more sophistic than true. This seems to be so, for instance, for the complement deviation by free amboceptors, as far as at the present time the work of Buxton²⁸ can be judged. That even basal principles of the theory can be assailed by Ehrlich's own method is lately demonstrated by Friedlander's²⁹ investigations into the agglutination of different races of typhoid bacilli. The result of this careful work formulates a difference between the binding groups and those groups producing antibodies, a view that in the relation between toxin and antitoxin is liable to throw a light clearing up many obscure points in the toxin action. It is possible that in the future, when greater certainty obtains on the character and behavior in reactions of colloidal substances in the gel and the solution phase, many immunity reactions may be explained in the same way. Still, it is for the present, with only the assumption, not proof for the colloidal nature of the immunity substances, not known, in which way the absolute and very strange specificity of the immunity reactions can be explained. We must admit that a number of postulates will yield and have already yielded to conclusive, contradictory evidence, but the very fact that this evidence means a correction of some of the statements of the theory, and of the theory itself, is proof for the basal correctness of the theory. There is no other way known at the present time to control the latter than the methods that have lead to an amount of knowledge astonishing in its extent and importance. The very reason why just now apodictic statements about the fall of Ehrlich's theory should be avoided is that we have nothing to place in its stead but vague, although often suggestive, comparisons. If a definite open way could be found to investigate the problems that Ehrlich so splendidly attacked by his method, a more rapid decision might be expected. As it is, Ehrlich's

course will be followed until a more satisfactory explanation of his results can be demonstrated. So far, this has not been done in a single case, as far as the principles of the theory are concerned. Ehrlich's theory has not fallen, although its aspects in many directions seem bound to be altered. The principles will survive until an insight has been obtained that we, with our present capacity, can not realize. That the immunity-reactions with which Ehrlich's school has mainly dealt, the hemolytic, bacteriolytic, precipitant and agglutinant, reactions are not the whole of the processes in the fight between host and parasite and in the establishing of immunity in both of them, begins to be more apparent through investigations published last year. They have thrown a light on a problem so far inaccessible to bacteriology, the infectious action of a number of bacteria, for which neither the bactericidal nor antitoxic agency of the host, nor the amboceptor or toxin part of the parasite could be discovered. This obtains among others (for instance anthrax), mainly for the streptococci and pneumococci, the effect of the growth of which in the animal body so far was unexplainable. Neufeld, Wright¹⁰, Recto³¹ have established the existence of substances that formed in the serum of the infected organism and act on the bacteria in a way that make them accessible to the phagocytic action of the leucocytes. This mode of the actions is at least certain from the exact experiments of Neufeld. Wright and Hectoen, who call the substance opsonin attribute to the leucocytes the main part in the reaction. The subject is as yet little explored, but promises great results in the future. It will form a connecting link between the phagocytosis of the Metchnikoff school and the more humoral views of the Ehrlich theory. Far more obscure are, as yet, the so-called aggressins of Bail³², bodies that are claimed by him to be formed by the action of bacteria in an infected organism and allow the bacteria to multiply, in other words substances to antagonize the natural bactericidal power. The method of experimentation of Bail is very complex and subject to many sources of error. Wassermann³³ has already demonstrated that for the typhoid bacillus the aggressins are nothing but degeneration products of the bacilli due to their destruction by the body fluids. He has been able to obtain typical aggressin action by extracts of these killed bacilli and made with serum, bouillon and even clear water. Nevertheless, certain sides of Bail's observations can not be explained in this way, the fact that in an organism gone through an infectious disease the causative bacteria can for a long time afterward be present in great numbers and with full virulence, has remained unexplained so far and might be understood on the basis of aggressin-processes. Wasserman, however, is inclined to believe rather in a local immunity, that cer-

tainly in some cases and conditions can be proved to exist. All of these problems wait for solution; they will, when solved, tell us more about the immunity processes than any theory so far advanced is able to do for the present.

Bacterial and other parasitic diseases have come in for a great deal of work, most of it corroborating and filling out gaps, but a great deal, too, announcing new findings. As to bacterial diseases, little is to be said. The views on typhoid have greatly widened with the marvelous complexity of the agglutination conditions brought to light lately. The work of Zupnick³⁴ especially has recalled for practical purposes more the clinical than the bacteriologic diagnosis. This does not mean that the latter is unreliable, but that for being made conclusive it must be surrounded with so many and complex safeguards, that a single reliable Widal reaction would take at least a day's work. Typhoid is beginning more and more to be considered the name for a group of diseases than as a pathologic entity. The consequence of this may at some time practically prove of great importance. As to the entrance of the typhoid virus, the conception of the primary intestinal infection must be restricted at least, as certain experimental observations rather suggest an entrance through the pharyngeal mucosa. The work on the dysentery bacilli has been thorough and multifold; uniformity of opinions has not been reached, even the pathogenic quality has not been firmly established. It is certainly true that numbers of the bacilli are often found where no dysenteric symptoms exist, even in the healthy individual; on the other side, typical dysenteric phenomena occur without the presence of the bacilli. Dysentery is certainly not an unit, and, perhaps, the bacilli find in it only the favorable conditions for multiplication.

Mention must be made of a paper by Wright³⁵ that seems at last to solve the riddle of the beri-beri etiology. He claims to have isolated a bacillus as the cause. It has to be said that the investigation, so far as the bacillus is concerned certainly is in many points not convincing. It is different with the vast amount of epidemiologic and sanitary observations made by the author, that in their entirety can not be interpreted but by the assumption of an infectious micro-organism. This is what Wright has established in the course of many years. Durck's³⁶ contrary conclusions are only based on pathologic material of a few cases.

The diplococcus of croupous pneumonia has had a great deal of attention, not only in a purely bacteriologic way, but also from a sanitary and hygienic point of view. While the first part of the work deals with merely the biologic questions that have already been mentioned, the more practical work represents an immense amount of labor spent,

but with no results of great importance. The almost only valuable point to be gleaned from the volume published by the pneumonia commission³⁷ is the great general frequency of the occurrence of virulent pneumococci in mouth and air passages of healthy persons. As the volume represents only a part of the results to be published, it may be that the contribution will be more fruitful, although to the initiated the hope is small.

Variola and vaccinia, as well as scarlet fever, have had a comparative rest. Some papers on Mallory's scarlet fever organism contradict themselves directly, the one contending that they are to be found in the blister fluid from the skin of patients, while the other asserts that they are not to be found in the living skin, but only 24 or more hours after death. In a minority of observers the cytoryctes variolae still lords it; in Bosc³⁸ of Paris, a strong combatant has arisen. The work of Ewing, begun in 1904, and continued during 1905³⁹ has brought out evidence that will be hard to contradict. Again, however, it must be emphasized, that nowhere else such a startling parallelism of degenerative processes with the cycle of development of a protozoic animal has been encountered, a parallelism that follows even the clinical phases of the disease in which it occurs with unalterable regularity. We know only of one similar observation, that of the Negri-bodies in hydrophobia, and here, too, the fight wages between parasite and degeneration. It is not impossible that a line followed the way of Hertwig's suggestions above quoted may lead to definite views. Ewing has already suggested this, but it can be done only by a much more careful study of the minute structures of the cells of metazoa. Some observers in Europe, (Retzins, Holmgreen, etc.) have conducted such work and the details described by them are bewildering. Before not all of these details are thoroughly investigated and explained in their character, we should not call cell-inclusions parasites without more evidence. It must again be said that the existence of such further evidence in the case of the cytoryctes cannot be a priori denied. The literature on variola has been enriched by Councilman⁴⁰ by a brilliant preliminary report on his investigations made in the Philippines. It contains many facts and mainly suggestions, that for the future solution of many yet obscure points in the life history of variola will be of immeasurable value. We hope that experiments have not been omitted on the filterability of the variola-virus, and await the full report with great expectations.

The last words suggest a remark on some splendid results obtained under the auspices of the Bureau of Animal Industry. Hog cholera was for many years considered as an infection, the etiology of which had been fully established. Some great minds, however, Salmon at

their head, had all along had some misgivings as to the true nature of this etiology. The suspicious evidence accumulated and was finally submitted to a thorough and scrutinizing dissection. The result was the fact that the etiology of hog cholera is not represented by the bacillus, given its name, but by a virus that passes the porcelain filters, an ultra microscopic organism. As the hog cholera bacillus is a well defined bacterium, nearly related to the typhoid and thereby to the coli group, the supposition that the filterable virus might be a developmental stage of the bacillus is, of course, excluded. This startling denouement is accompanied by the other, the remarkable constancy with which the hog cholera bacillus is present in the lesions that are caused by the ultra-microscopic virus. This fact is exceedingly important, and gives strength to the warnings that have been made before from several sides, not to take as evidence alone the constant presence of a microbe, be it even a pathogenic one, as the hog cholera bacillus, as confirmation of its etiologic meaning. Such a suggestion has even been made for the case of dysentery, and many observations concur to give this suggestion a justifiable existence. For a problem to be mentioned later, the same precaution is advisable.

Perhaps the most fascinating part of the work done in parasitology, fascinating, because it has with a sudden stroke called our attention to the fact that besides bacteria, other organisms play an important part in widely devastating infectious diseases, is the development that our knowledge of protozoan-infections has obtained. The literature on this subject has increased to a degree that it will soon be out of reach of the not specialist reader. The main feature of the subject represented by the infections caused by a protozoan belonging to the sporozoa and generally called trypanosoma. Several, especially in tropical countries, widely distributed and mostly fatal diseases of man, have been recognized as due to infection with this protozoan. In the front of interest stands the mysterious sleeping sickness that in certain parts mainly of Africa claims thousands of victims yearly and can assume epidemic, or, rather, endemic character. The disease is caused by the bite of an insect, the definite species of which so far has not been with certainty determined, that has fed on an infected individual. The issue of such an infection is mostly fatal. In certain parts of southern Asia, protozoa are at the bottom of a peculiar cachectic-anaemia, going along with an immense hypertrophy of the spleen, that is caused by an organism nearly related to the trypanosomas. A peculiar ulcerative condition of the skin, that in the different countries goes under different names, but most widely known as the Aleppo-Beule, is produced by a very similar microbe. These organisms were

first discovered by Leishman, and the form in which they are usually found in the lesions goes under the name of Leishman's bodies. Last year we considered them as curiosities, in 1905 they have been established as the cause, which, in many of the regions, is one of the foremost dangers to the life of the inhabitants. It is not feasible to enter into details of the work that has resulted in this enormous advance in our knowledge. For trypanosomas we have in Laveran's⁴¹ book a work that comprises everything that we have learned.

It would take too much space to go into the many other discoveries in which protozoa, especially in the tropics, were found in man, and probably as causes of disease. These investigations are in their infancy, but there is no doubt that very soon our knowledge on this side of parasitology will be as rich as that of the bacterial infections. Already investigations are under the hands of many men, trying to not only develop the cycle of development of these organisms, but also to clear up the character of their pathogenic action. Ehrlich has made the first step in this direction with his experiments on the action of trypanred on trypanosomes. All of this work is more difficult and complex, since here we have, like in malaria, to deal with a change of generations, and it will take a long time before such a cycle, even for a single parasite, has been fully established. For the trypanosomes, it seems, the attempt will be successful, since we have reason to believe that some of the pathogenic forms are reduced in their cycle, and are only mechanically transmitted by insects.

Malaria, we may omit from our review, because nothing of any importance or new has been brought out. A paper published by Ch. F. Craig (*Americ Medri*. Vol X No. 24 and 25) is of great importance for many questions. Its appearance is so very late that the work can not be considered here. It may be allowed to state that in the matter of prevention of malaria, an opinion has become general that not one of the methods recommended alone will do the work, but that with combining them according to the local conditions, it is possible to eliminate malaria. Koch's quinine method will do good, where it is possible to apply it, but it being used alone fails for patent reasons in the majority of cases. Destruction of mosquitoes and isolation of patients are necessary where a controlling of the populace is not possible.

Very little, too, can be said in a review considering pathologic and bacteriologic questions about yellow fever. We can be proud that it is so, because the researches made some years ago in our own country have so exhausted the subject, that it seems impossible to give important additions to it. In 1904 the French Commission gave a good exemplification of this assertion by only confirming fully what had been

found in Cuba by Americans two years before. The only new point evolved by them was, that the period of incubation, by Reed, Carroll and Lazear determined as 3 to 5 days, could be prolonged to 12 days. A similar proof of the exhaustive work of our country is offered in 1905 by a German investigation (Otto and Neumann²⁴) made by official authority that has not added anything to what we know. The ultra-microscopic investigations made by this commission were made without a thorough knowledge of the possibilities afforded by it as to the determination of the character of autonomously moving particles. With this exhaustive result of our own former and later researches and the easiness of its practical application, the epidemic last year in the south must correctly be called an anachronism.

We could say a great deal about other parasitic diseases, new helminths, new filaria-infections and the investigation of the relation of the infection by the latter to the stages gone through in the second host, the mosquito. The study of ancylostomiasis has been very extensive and brought out above all (Loos) the fact that the infection occurs mostly by the larvae penetrating through the skin. The tick-fevers or piroplasmoses (red water, etc.) in cattle, sheep, horses and dogs have received, too, careful research with important results. The human piroplasmosis found in Oregon and Idaho has been questioned in its etiology by Stiles; with what right, we can not tell yet. As to the cattle piroplasmoses Koch's investigations have revealed very important details as to immunity and the method of infection. With the beginning of last year, the spirochaetes entered the field by the discovery of Ross and Milne of the presence of such organisms in the blood of patients suffering from tick fever in the Congo Free State. Dutton and Todd later established that they were transmitted by a tick (*ornithodoros moubata*) infected by biting fever patients. Koch has confirmed these observations, and as for the spirochaete *obermeieri* similar relations seem to obtain. Schaudinn at least has demonstrated that this parasite multiplies in the intestine of the bed bug, while it was long since announced by Karlinski that they could remain alive in this insect for as long as 30 days. Marchoux and Salimbeni found in a fatal disease of fowl in Brazil a spirochaete that was also transmitted by the tick (*Argas miniata*). In the blood of patients suffering from yaws lately also spirochaetes have been found. A spirochaete that deserves special attention is the spirochaete *pallida*, discovered by Schaudinn in syphilitic lesions. The immense interest that this organism has aroused is natural in view of the great importance of the disease on general health conditions and of our so far absolute inability to account for its etiology. Although the constant presence of the

spirochaete in specific lesions, its finding in the blood, in organs of congenital syphilis, in the experimental syphilitic lesion produced by human virus in monkeys, etc., and on the other side its total absence in any other pathologic condition appear highly suggestive; the conclusive evidence for its etiologic character is not brought out yet. It is a very fortunate coincidence that Shaudinn's discovery was preceded by the success of a number of investigations (Roux, Metchnikoff, Neisser, etc.) in inoculating syphilis into monkeys, thus creating the possibility of experimental dealing with the many obscure features of the disease. As to the etiology, this possibility will be of pre-eminent importance, and we may expect with a great deal of confidence, that it will assist in the demonstration of the etiologic role of Schaudinn's spirochaete.

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OBSTETRICS AND GYNECOLOGY.

IN CHARGE OF

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PUBIOTOMY. The year 1905 undoubtedly will go down in the history of obstetrics as the year in which pubiotomy was generally recognized as one of the most valuable operations of modern obstetrics. It seems appropriate, therefore, to begin this review with a detailed consideration of this operation.

Sigault in 1768 was the first to suggest a temporary enlargement of the pelvic canal by cutting the pubic symphysis. The history of symphyseotomy is well known. It is obvious that in pre-antiseptic times the results of this operation were extremely unsatisfactory. The operation soon fell in utter disgrace, chiefly by the efforts of Baudeloque. Conditions changed markedly with the introduction of antiseptics. About fifteen or twenty years ago obstetricians once more began to practice symphyseotomy. Technique and instrumentarium were improved and in the hands of Morisani, Pinard and Zweifel the operation yielded decidedly satisfactory results. Zweifel advanced convincing proof that by means of this operation fully developed children could be extracted from contracted pelvis with a true conjugate down to 6.75 cm. Nevertheless symphyseotomy did not become popular. While a hundred years ago fought on theoretical grounds, of late the operation was objected to because it may lead to unavoidable injuries of a serious nature, such as tearing of the bladder, etc., because some patients, in whom the symphysis failed to unite, remained crippled forever, and finally because symphyseotomy is an "unsurgical" procedure. Especially on this latter issue Zweifel, the defender of symphyseotomy, and Gigli, the inventor of the modern pubiotomy, came to a hard clash¹. Gigli's answer to Zweifel's paper² makes interesting and amusing reading.

The essential difference between symphyseotomy and pubiotomy lies in the fact that the latter operation accomplishes the temporary severance of the pelvic girdle by a cut through the pubic bone just laterally to the symphysis. As early as 1821 Champion de Bar le Duc and later in 1830 Stolz suggested this operation, contending that such an incision through the bone would present more favorable conditions for healing than the opening of a joint and a cut through a cartilage. With the only exception of the paper of Zweifel¹ already referred to, in my knowledge no effort has been made of late to deny this claim.

In 1841 Galbiati went one step further and divided both pubic bones, calling his operation bi-pubiotomy. The increase in the size of the pelvic canal obtained in this manner was such as to justify the hope of doing away with Cæsarian section entirely which at that time certainly was a very dangerous operation. Pubiotomy was, however, never practised to any extent. To cut through the pelvic bones by means of the knife and chisel was too difficult a task to commend this procedure for extensive use. In 1892 Gigli of Florence suddenly and completely removed all the difficulties of this operation by inventing his steel wire saw, an instrument which today is used the world over; but it is probably not generally known that Gigli invented this instrument for the express purpose of experimenting with pubiotomy on the cadaver. Bonardi of Lugano in 1897 performed the first pubiotomy on the living and obtained a perfect result although working under most unfavorable external conditions. The present enthusiastic acceptance of pubiotomy by practically all the leading obstetricians of Europe is due to the noteworthy modifications of the original operation which have been suggested by Doederlein³. Gigli's original operation consisted of the following steps: In a line running from the middle of the upper edge of the pubic symphysis downwards and slightly outward skin and underlying tissues are incised with the knife down to the bone. After blunt dissection of the tissue adherent to the posterior surface of the pubic bone a Gigli saw is led around and the bone divided in an oblique line corresponding to the oblique skin incision. Van de Velde of Haarlem⁴ modified the operation by dividing the pubic bone in a vertical line which begins at the upper edge of the bone just inside of the pubic tubercle and terminates at the lower edge about where Gigli incision ends. It may be stated that this vertical incision of Van de Velde is at present the generally accepted one. Doederlein's merit in the popularization of pubiotomy lies chiefly in the invention of his subcutaneous method. He discarded the long vertical skin incision and substituted for it a short horizontal incision, about three centimeters long, running along the upper edge of the pubic bone just laterally to the symphysis. There can be no doubt that the subcutaneous methods are rapidly gaining in favor. Walcher⁵ has invented an entirely subcutaneous operation which is highly recommended by Pfeilsticker⁶. To enable the reader to understand the rationale and the merits of the subcutaneous methods, I shall first describe the next step of the operation, viz.: the introduction of the saw.

In the open method, by means of dissection, a canal is opened around the pubic bone. In Doederlein's method, the finger enters through the small horizontal incision and separates the adherent tissue from the posterior surface of the bone. A guide needle is introduced

through this canal which finally, just under the lower edge of the pubic bone, is pushed through the skin of the labium majus. The saw is attached to the guide needle and pulled through the canal. Differently shaped needles are used for this purpose, all more or less resembling aneurysm needles. A very ingenious little instrument which permits the simultaneous introduction of guide needle and saw has been described by Seeligmann¹⁰, and has recently been praised by Duehrssen¹². It consists of an appropriately curved groove director. The little loop at the end of the Gigli saw is laid around the pointed end of the probe while the saw itself lies in the groove. Walcher in his completely subcutaneous method punches his needle without any preliminary incisions directly through the labium majus upward behind the symphysis and passes through the skin near the pubic tubercle. He controls the course of the needle with a finger in the vagina. The question whether the introduction of the guide needle from above downward or vice versa is more advantageous is still *sub judice*. Doederlein's incision, of course, calls for the introduction from above. Schauta⁷, Buerger⁸, Zweifel⁹, Seeligman¹⁰, Tandler¹¹ and others favor the route from above downward. Preference is given this route because it is supposed to offer less risk of injury to either bladder, ureter or the large vessels in the *lacuna vasorum*. One of the greatest advantages of pubiotomy over symphyseotomy lies in the fact that the incision does not communicate with the vagina, if not by accident a very deep laceration of the vaginal wall occurs. These lacerations in the opinion of Porak¹⁷ are common, but they have undoubtedly become much rarer of late, since it has become evident that they can successfully be prevented if the lower point, through which the saw passes, lies well within the large labium, and not near the small labium or the vagina as often was the case in the earlier operations. Of course the employment of any of the methods in which the needle is introduced from below guarantees the favorable situation of the lower opening. Pfeilsticker⁶ particularly emphasizes that in taking this route the bladder can be positively protected against any injury if the point of the needle on its way upward is controlled with a finger introduced into the vagina. The needle is always held close to the bone and if possible kept beneath the periosteum.

From 15 to 25 to and fro movements of the saw suffice to cut through the bone. If the cut ends do not immediately separate from one to two cm. it can be assumed that fibrous ligaments running along the upper and lower edge of the pubic bone have not been divided and the saw must be pulled up and down a few more times. When the complete division of bone and ligaments is secured the saw is withdrawn.

The idea of leaving the expulsion of the child to natural forces is generally repudiated. Some writers favor the use of the forceps, others version, the former apparently being in the majority. Duehrssen¹² pleads for routine version. It has already been pointed out that a deep laceration of the vaginal wall, which would establish a communication between vagina and the field of operation, is one of the most unfavorable and most dreaded complication of pubiotomy. In general a forceps seems more liable to produce such an injury. Version on the other hand has the decided disadvantage of increasing the danger of a puerperal infection by necessitating the introduction of the hand into the uterus. Buerger, Franque¹⁶ and others have pointed out the great advantage of pubiotomy over symphyseotomy, and as will be later seen also over Cesarian section, in that pubiotomy can be successfully performed even in infected patients. It seems to me that just this one striking advantage would be obviated by routine version. I think it would be safer to accept the forceps extraction as the operation of choice and to perform a liberal episiotomy on the other side, whenever the *introitus vaginae* seems excessively stretched during the extraction. If necessary the cervix first has to be completely dilated. The usual methods are employed, Hohlweg¹³ used the Bossi dilator. -

Immediately after the division of the *os pubis* the cut ends of the bone are separated from 1 to 3 cm., but during the passage of the fetal head through the pelvic canal, especially at the time when a strong traction is made with the forceps, or at the height of a labor pain the ends easily separate 6 to 7 cm., as e. g., is recorded by Hohlweg or Reifferscheid¹⁴. In order to avoid a too wide gaping with its possible danger of an injury to the sacro-iliac joint, Doederlein advised to apply a rubber bandage around the patient's hips. This method has been adopted by some, e. g., Sitzenfrey²¹, on the other hand, it is refused for theoretical reasons by Baumm²² who otherwise has enthusiastically adopted Doederlein's method after having had very unfortunate experiences in two cases with his own modification of the original Gigli operation.

As soon as the child is extracted, the hemorrhage which at times is quite profuse, is stopped. If the vertical cut through the pubic bone is made within the pubic tubercle, th. i. is not more than 2 cm. distant from the symphysis (Sellheim)¹⁸, and if the guide needle is carefully introduced close to the posterior surface of the bone no larger vessel can be injured. A free venous hemorrhage results from an injury of the dorsalis clitoridis and the plexus pudendalis impar. Tandler¹¹ contends from anatomical investigations that a laceration of the corpus cavernosum clitoridis seems unavoidable. In his opinion, if not in-

jured by the guide needle, it is torn when the bone ends separate. Sellheim¹⁸ and Walcher⁷ show how an injury with the guide can be avoided by keeping close to the lower edge of the bone. In the open methods of Gigli or Van de Velde the control of the hemorrhage is easier because it can be accomplished under direct control of the eye. In the subcutaneous methods, which at present are generally preferred, the hemorrhage is checked by packing the wound canal with gauze or by external compression by means of heavy sand bags and a tight bandage. To my knowledge there is no case recorded in which this hemorrhage was of a really serious nature. The formation of large hematomas, however, is frequently mentioned. In most cases they seemed to have disappeared promptly, in a few suppuration occurred. It is obvious that this latter complication can be more successfully avoided if the wound does not communicate with the vagina.

No attempt is made at present to unite the cut ends of the bone by means of a suture. Most operators sew, if possible, the upper incision, and drain through the lower opening if drainage is necessary. Any injury to the perineum is carefully repaired.

The simple Scultet flannel binder around the hip seems today in general use as the only means of keeping the cut ends of the pubic bone in approximation. If no complication arises the patient is kept in bed from two to three weeks. The women often at first complain of a little pain at the side of the incision sometimes running down the leg, but soon all discomfort disappears. Van de Velde¹⁵ emphasizes that in symphyseotomy the cut ends may fail to unite entirely or the union may be affected by fibrous tissue only, in which case the locomotion of the patient is seriously interfered with. In pubiotomy such an unfortunate sequel of the operation so far is unknown. It is interesting to note that x-ray pictures taken thirty days after the operation e. g. by Buerger⁸, Franke¹⁶, etc., show distinctly the cut ends still separated while the patient's gait was absolutely normal. Reeb²⁶ thinks that this fact could be easily explained by a still insufficient deposit of lime salts in the otherwise normal osseous callus. This sometimes is very thick and seems, at least in some instances, to lead to a permanent enlargement of the pelvis. Van de Velde¹⁵ lays much stress on this advantageous feature of pubiotomy. One of his pubiotomized patients a few years later again became pregnant. At term, under anesthesia, the child was delivered without any great difficulty.

The immediate effect of pubiotomy upon the size and the shape of the pelvis has been carefully studied both upon the cadaver and the living. Certain variations in the results of experiments on the cadaver can be easily explained by the fact that the pelvic joints at the normal end of pregnancy are capable of unusually large excursions.

For obvious reasons but a few such pelves were available for experimentation. Cauvengerghé¹⁹ with a separation of the cut ends of 4 cm. measured an increase of the conjugate of 1 cm., of the transverse diameter of the inlet of 1.4 cm. A separation of 4 cm. in his opinion is liable to injure the sacro-iliac joints. The enlargement of the pelvic inlet is greater on the divided side. Rosenfeld's²⁰ studies on pelves of cadavers yielded a similar result. He furthermore observed that in flat pelves the transverse diameter increases equally on both sides, while in equally and transversely contracted pelves the transverse diameter shows a comparatively larger increase on the side of the incision. This observation is of considerable practical importance and justifies the demand made by several authors to perform pubiotomy on the side on which the occiput lies, or will lie, if version is contemplated. Experiments of Sellheim²³ in which he studied the comparative effect of symphyseotomy and pubiotomy led to somewhat different results. He found that in both operations the enlargement obtained with a certain distance of the cut ends is the same and in both operations is equal in both halves of the pelvis. Of interest is his observation that this increase of the dimensions of the pelvic inlet transforms the pelvis into one of the kyphotic type. Hohlweg¹³ was so unfortunate to loose one of his patients. Measurements taken at the post mortem showed an increase of one half centimeter of the true conjugate and of 1 cm. of the transverse diameter with a separation of but 2 cm. of the cut ends.

The indications for pubiotomy are plainly stated e. g. by Kannegiesser²⁴ who says that for obvious reasons this operation must be suitable for all cases in which symphyseotomy is considered indicated, that is according to Zweifel, in flat pelves with a conjugata vera between 6.75 and 8.5 cm., in generally contracted between 7.5 and 9 cm. Many of the writers give the exact pelvic dimensions of their patients. Reifferscheid describes one case with a true conjugate of 7 cm., another case of a generally contracted flat rachitic pelvis with a vera of 6.75 (in both instances measured with the Bylicki-Gauss instrument). Full term children were extracted apparently without any difficulty.

I do not know of a single record of a case in which a man had failed to extract the child after having performed pubiotomy. If an operation, which can be performed with comparative ease with a decidedly simple instrumentarium, is suitable to overcome the difficulties offered by a pelvic contraction down to a true conjugate of 6.75, this operation seems destined to supplant Cesarean section for relative indications and to reduce the necessity of perforation of the living child practically to nil. This is the way in which all the later contributors to the question are reasoning. Records of successful operations are

multiplying at a fast rate. While Gigli in a paper read before the Obstetric Society of Vienna on May 16, 1905,²⁵ proudly states that 80 operations of this kind have been performed since 1897, Deuhrssen, in a paper published December 4, 1905,¹² was able to draw his conclusions from 115 cases recorded up to the time of the writing of the article. He found in these 115 cases but 6 cases of death, this number including one chloroform death, one patient who died of typhoid fever, another of septic thrombosis, this last patient having been in a septic condition when brought to the hospital. (The mortality of symphyseotomy still remains above 10 per cent!)

Pubiotomy is generally pronounced an operation practically free of danger if performed *lege artis*, and thus one cannot be surprised to see the question seriously considered whether pubiotomy is not preferable to artificial premature birth in cases of slighter pelvic contraction. Doederlein considered the operation, or at least the introduction of the Gigli saw around the pubic bone, harmless enough to suggest its prophylactic introduction in doubtful cases. If in the course of labor pubiotomy seems indicated the bone then can be cut within a few minutes. This prophylactic application of the saw has been adopted by several obstetricians and is highly recommended by Reeb⁹. Duehrssen is inclined to believe that pubiotomy could be safely performed by the general practitioner. (I shall later have occasion to show that Duehrssen does not consider the general practitioner capable to use the Bossi dilator, so that the very interesting deduction can be drawn that in the opinion of Duehrssen pubiotomy is an easier operation than the application of the Bossi dilator. This certainly seems an exaggerated favorable opinion concerning pubiotomy.)

The instrumentarium, the technique and the after treatment of pubiotomy are simple. General anesthesia is not absolutely necessary, local anesthesia may be of considerable help. (Bonardi's first pubiotomy on the living was performed without anesthesia).

Before I close the review of these most important contributions of the past year on this subject (I found thirty-one different articles, and this number certainly does not include all the papers published). I wish to call the attention of the reader to some divergence of opinion concerning the proper name of this operation. Pubiotomy, or as some write it pubeotomy or pubotomy (Baum), is the historical name as first suggested by Champion, Stoltz and Galbiati. Gigli introduced the term Lateral Incision (Lateralschnitt) which is employed by many of the German writers. Van de Velde objected to the hybrid word pubiotomy, which is half Latin and half Greek and proposed Hebotomy as the correct Greek term. French writers seem to favor this

name. Duehrssen suggests a general acceptance of the term Gigli's Hebotomy, which would be both correct and just.

BOSSI DILATOR. The artificial dilatation of the cervix during pregnancy and labor was one of the two subjects presented for discussion before the last Congress of the German Gynecological Society in Kiel in June, 1905.²⁷ The two opposing views very clearly stated in the "Referate" prepared for the congress by Leopold and Bumm, Leopold advocating the quick dilatation with some such instrument like the Bossi dilator, Bumm contending that all steel dilators are dangerous, and that the incision of the cervix undoubtedly is the preferable mode of procedure. Both essayists found supporters of their respective views among the large number of more or less prominent obstetricians who joined in the discussion. It would seem that the majority of the speakers were in favor of the Bossi instrument, because this instrument can be used by the general practitioner without trained assistance. This point is of considerable interest in connection with the simultaneous efforts of Duehrssen to fight the Bossi dilator just on this ground. Duehrssen²⁸ published a paper bearing the title: "Is it permissible to recommend the Bossi method to the general practitioner?" He emphatically answers this question in the negative. The manifold dangers of the method are described with much detail. But that this article contains a good deal of exaggeration, garbling of references and bad reasoning, is plainly shown in a paper of Lichenstein³¹ written in defense of the Bossi method. In Duehrssen's opinion the Bossi dilator is superfluous after the obliteration of the cervical canal and is a decidedly dangerous instrument before its obliteration. The dilator, he contends, can be applied without undue risk to the patient only by the specialist. For the specialist, however, vaginal Cesarean section (after Duehrssen) must always be the preferable procedure. The general practitioner must be encouraged to use the colpeurynter. This recommendation of a more extensive employment of colpeurysis, or as it more appropriately should be called metreusysis, can be heartily endorsed. The general practitioner does not seem sufficiently acquainted with this comparatively safe and reliable means of quick dilatation of the cervix. Many of the speakers at the congress in Kiel dwelt upon the various advantages of metreusysis. One of the chief arguments commonly used against the Bossi dilator is the danger of a deep laceration of the cervix leading immediately to a serious hemorrhage and later to troubles of a gynecologic nature. This latter point was first emphasized by Bardeleben²⁹ and his paper has been quoted by every opponent of Bossi. Lichtenstein³⁰ in a recent paper seems quite successful in demonstrating that the adverse opinion of Bardeleben is void of any justifica-

tion. The proceedings at Kiel are critically reviewed by Sir Sinclair³² in an article which he concludes with an expose of his own opinion in the matter. He undoubtedly is very conservative. He repudiates both the steel dilator and the cervical incisions, and claims that for earlier stages of pregnancy laminaria and the graduated dilators of Hegar, for later stages the colpeurynter proves sufficiently effective.

CESARIAN SECTION IN PLACENTA PREVIA. In a well arranged and well written article Holmes³³ proves once more that Cesarean section is an "Improper Procedure" in the treatment of placenta previa. The literature on the subject is thoroughly reviewed, the article containing 103 references. The writer, for reasons unknown to us, has, however, failed to include in his otherwise very complete list of references the following article: H. Ehrenfest. The Impropriety of Cesarean Section in Placenta Previa, published January 11, 1902, in *American Medicine*. In this paper I have 3 years ago arrived at conclusions which are practically identical with those of Holmes.

INTRACRANIAL HEMORRHAGES OF THE NEW BORN. Harvey Cushing in a recent paper³⁴ made some generalizations in regard to the propriety of operative measures for certain maladies of neurological interest, that are commonly considered beyond therapeutic aid. Among other conditions the cerebral palsies of children were cursorily reviewed. In response to many inquiries for details Cushing amplifies the original short paragraphs in a special paper³⁵ which in my opinion ranks high among the contributions of the last year to medical literature, and cannot fail to arouse the interest of every obstetrician.

A few years ago, when making observations on the circulation of the cerebro-spinal fluid, he studied a number of infants who had been stillborn, or had died during the early hours or days of life, and found to his surprise, that a considerable percentage of them had died with an intracranial hemorrhage. The idea suggested itself that at least in some of these cases the hemorrhage must have played some part in the asphyxiation recorded in the clinical histories. The situation and distribution of these hemorrhages make surgical interference feasible, if we can find symptoms which in an early stage permit the diagnosis of the presence and the location of the clot. Judging from his own experience the writer thinks that the condition need not be difficult of diagnosis. A lumbar puncture may be of value in doubtful cases, since the presence of red blood cells in the lumbar meninges will prove an effusion of blood into the subdural space. The history of labor, of course, is all-important, also the degree of post partum asphyxiation. The condition of the fontanelle, convulsions especially if unilateral, ocular conditions, etc., may furnish

enough subjective symptoms for the diagnosis of an initial lesion. In its fully developed and terminal aspects the disease is better known, especially to neurologists as: spastic palsies, blindness, deafness, feeble-mindedness, complete amentia. And there is one more serious sequel, which according to Gowers occurs in two-thirds of all cases, and accompanies the mildest grades of the disease—this is epilepsy. The article contains the detailed histories of four craniotomies performed by the author on new born infants. Two of the babies died, but in the two others the success was so striking, so complete, that no fair minded reader can help being impressed by this ingenious suggestion of the writer to bring help to infants who are condemned to a dreadful existence, if they unfortunately escape immediate death.

PHYSIOLOGY OF THE PLACENTA. A very exhaustive consideration of our present knowledge of placental function with the addition of a number of interesting and valuable new findings can be found in a monograph of J. Hofbauer, entitled: *The Biology of the Human Placenta*.³⁶ The main objects of his studies are the metabolic processes occurring within the placenta. In that part of his book, which he calls the biochemic, he arrives at the conclusion, that the placenta represents the organ of assimilation for iron, albumen, fat and oxygen. The cells of the chorion-epithelium contain ferments which both by means of simple surface contact and by diffusion act upon the corpuscular elements of the maternal blood. The elements transformed by the action of these enzymes are assimilated by the epithelium. The chorionic villus in its biologic function thus resembles closely the villus of the intestinal mucosa, with the only difference that the latter obtains the active ferments from glands, while the chorionic villus contains them within its cells.

Hofbauer proves the existence of placental ferments by the presence in the placenta of albumoses which cannot be found either in the maternal or fetal blood.

Bergell and Liepmann³⁷ endeavor to establish the existence of enzymes in the placenta by a more direct method. They produced an extract of placenta and observed its fermentative action upon certain substances. In this way they ascertained a diastasic, a glycolytic and a proteolytic ferment. Basso³⁸ concludes that the placenta must contain enzymes, because he was able to observe autolytic processes in this organ. Bergell and Liepmann, however, believe that while suggestive this observation is not absolutely conclusive, since such autolytic processes are typical for many organs. In studying the transition of fat from mother to fetus Costa³⁹ could exclude a direct passage

of neutral fats through the placenta and was forced to the conclusion that they pass in the form of soaps. The chorionic villi transform these soaps back into neutral fats. Charrin and Goupil⁴⁰ while not denying the function of the placenta as a gland with an internal secretion apparently consider its chief action in being a filter, which retains substances dangerous to the fetus. If certain investigators of the etiology of eclampsia have found the placenta to contain toxic substances and then have concluded that these toxins originate within the placenta, they make, in the opinion of these writers, the great mistake of forgetting of the filter action of the placenta.

A paper of unusual merit and interest is that of Halban⁴¹ on the influence of internal secretion of the placenta upon lactation. From very ingenious theoretical considerations and exact clinical observations Halban concludes that only the placenta (and not the ovaries) could produce those substances which when entering the maternal system give rise to the typical changes occurring in certain organs in the course of pregnancy and the puerperium. He selected as the most suitable object for his investigations the breasts as the organs whose function can be best observed. In reference to the breasts his theory is the following: The placenta furnishes the formative impulse. Cessation of its biologic function causes retrograde processes in the mammae. Lactation is the first symptom of the beginning atrophy.

In a discussion before the Vienna Society of Physicians Kreidl and Mandl⁴² showed some hesitation in accepting this theory in its entirety. Mandl based his arguments upon the results of very interesting experiments made on pregnant animals. He opened the abdomen, killed the fœtus within the uterus and replaced the pregnant uterus. From 2 to 4 days later the breasts of these animals discharged milk. These experimental observations are well in accord with a few records in literature of cases in which an entirely unexpected beginning of milk secretion became indicative of the sudden death of the fetus. This phenomenon has been observed both in uterine and extrauterine pregnancy, and it has been suggested that this symptom could be regarded as indicative of the interruption of an ectopic pregnancy. Halban in defense of his theory argues against Mandl that the secretion of milk is the result of a "biologic" separation of the placenta from the mother and that therefore the intrauterine separation and destruction of the placenta, as produced by Mandl, and its actual expulsion during labor are identical processes in their biologic aspects.

Of some interest in the question of the physiologic function of the placenta may prove a paper of Fossati⁴³ in which he describes a fine

nervous reticulum in the placenta which occupies the central and peripheral portions of the villi. The nerve fibres penetrate into the superficial epithelial cover of the villi and thus this observation may be regarded a valuable additional proof for the fetal origin of the chorion-epithelium.

ECLAMPSIA. Whenever in the history of medicine speculation, experimentation, or an accident has lead to a new theory which seemed generally applicable, for obvious reasons an attempt has been made to explain by this theory facts, which heretofore have been inexplicable. With these words Labhardt⁴¹ begins a very clear and comprehensive critic of the various biologic theories of eclampsia, based upon Ehrlich's theory of immunization. The numerous biologic theories of "The disease of theories" as eclampsia is called by Zweifel, can be divided into three groups: a.) *Veit's Hypothesis*. Placental tissue is deported into the maternal system and there leads to the production of a toxic substance. If suddenly a large amount of placental tissue is thrown into the maternal blood, an excessive amount of these toxins is formed, which cause eclampsia. b.) *Ascoli* goes one step further. Foreign substances introduced into the blood immediately cause the production of neutralizing, antitoxic bodies, known as lysins. If placental tissue—as a rule it is only syncytium—reaches the maternal blood, syncytiolysins are formed. An excessive amount of syncytiolysins in Ascoli's opinion cause eclampsia. c.) *Weichardt* extends Veit's theory. As the result of the dissolution of the syncytium, carried into the maternal system, syncytiotoxins are formed which under normal conditions are neutralized by antibodies, under pathologic conditions they poison the mother and produce eclampsia.

In discussing these theories Labhardt acknowledges the fact that during pregnancy chorionic elements, usually only syncytium but at times whole chorionic villi, are deported into the maternal blood. It is undeniable that emboli formed by such deported placental tissue are more commonly found in eclampsia, as has been ascertained by Schmorl.⁴⁵ But, of course, it could be argued that this apparent increase in the number of emboli consisting of chorionic elements may not be the cause but the result of the eclamptic convulsions. The largest number of placental tissue emboli has been found by Schmorl in two cases of very early abortion. If this deportation of tissue is so common in abortion, and if this deportation is of paramount importance in the etiology of eclampsia, it will be difficult to explain why eclampsia is so extremely rare in early abortion.

Labhardt hesitates to accept the far reaching deductions of Weichardt. We are still in complete ignorance concerning those toxins produced by the introduction of placental tissue, but Weichardt al-

ready bases theories upon an insufficient production of antibodies against these toxins. Of course any theory footing upon Ehrlich's hypothesis assumes that the syncytium exhibits toxic qualities in contact with the maternal blood. The question comes up in this connection whether syncytium is maternal or fetal tissue. It is obvious that any positive proof that it is of maternal origin would explode all the biologic theories of eclampsia. It seems that at present practically all investigators agree that syncytium is fetal tissue, but a few writers still dissent, e. g., Pfannenstiel in Winckel's *Handbuch der Geburtshilfe*⁴⁶ or Sfameni³⁷. Granted that syncytium is fetal tissue, Ehrlich's theory is applicable to an explanation of eclampsia only if fetal tissue is heterogenous to maternal tissue, th. i. acts upon maternal blood like the blood of another species. This claim has been actually made by Dienst in a paper of which I shall speak later. There do exist chemical and biological differences between the blood of the mother and the fetus, but after all the fetus develops from a maternal ovicell. Of course the fetus also contains an admixture of paternal tissue, but it seems just as difficult to assume that man and woman belong to different species.

If only the detached and deported syncytial tissue is capable of developing toxic qualities, then it must be assumed that it is chemically different from the living syncytium which covers the chorionic villus. How could such a difference be explained? Hardly by changes in the nutrition of the dead detached tissue, because in this respect it certainly resembles the conditions existing in the syncytium of a dead ovum, and it is well known that eclamptic convulsions often suddenly cease if the fetus dies. It is held by some writers that the comparative frequency of eclampsia among primigravidae can be explained by an active immunization of the multigravidae acquired during preceding pregnancies. Guilemi⁴⁸ explains in this manner the rarity of recurrence of eclampsia in the same patient. If this is true the blood of multigravidae *a priori* must contain a certain amount of syncytiolysins. But why do these lysins not manifest themselves during pregnancy in a destructive action upon the chorionic villi? The deportation theory fails utterly in explaining cases of typical eclampsia occurring several days after labor. There is one more observation which seems to deprive all the biologic theories of one of their main foundations. Large quantities of placental tissue are dissolved and completely resorbed in all cases of unoperated ectopic pregnancy, but eclampsia is practically unknown in ectopic pregnancy.

A careful perusal of Labhardt's paper enables one to gain a rather clear conception concerning the present status of these biologic theories of eclampsia. Many of the arguments used by him in the attempt of discrediting these theories are good. But the problem is complex, new observations, new detections are recorded daily, new

hypotheses are propounded at a fast rate, and soon some of the good arguments of Labhardt will be all wrong. This is already true for some of them, e. g., those referring to the deportation of placental tissue. Dienst⁴⁵ in discussing the ultimate fate of emboli formed by chorionic elements repudiates the views of Veit and claims that the deportation of villi into distant organs, or even the simple detachment of villi, as described as typical occurrences by Poten, are not physiological but distinctly pathological processes. But an actual deportation of placental tissue is not any longer essential in some of the latest biologic theories of eclampsia. Halban⁴⁹ believes that the eclampsia toxins originate in the placenta as products of a secretory action of the chorion epithelium. Colorini⁵⁰ found in the placenta of eclampsia patients an abnormally large number of syncytial buds. In his opinion eclampsia is caused by an excess of internal secretion from these buds. These syncytial excrescences may become detached and may be carried as emboli into the maternal organism, where they continue their secretory function. Liepmann⁵¹ finds the eclampsia toxins right in the placenta. He transformed dried placenta into a powder which he injected into the peritoneal cavity of rabbits. All animals died with the distinct symptoms of intoxication. (Confer a paper of Charrin and Goupil on the filter action of the placenta, mentioned in a preceding paragraph.

An entirely new eclampsia theory has been propounded by Dienst.⁵² He suggests that eclampsia results from the transgression of fetal blood into the maternal blood as the result of a leakage in the placenta. By injecting certain fluids through the umbilical vessels both into the shed placenta of eclampsia patients and into the still adherent placenta immediately after the expulsion of the fetus he was able to demonstrate that in the majority of instances the integrity of the epithelial covering of the chorionic villi was disturbed. The eclampsia toxins are the result of the direct action of the fetal upon the maternal blood. Dienst's theory, as has already been pointed out, is based upon the assumption that fetal blood is heterogeneous to maternal blood. Liepmann⁵³ vigorously repudiates such an assumption and actually induced Dienst to modify his original theory.⁵⁴ Mathes⁵⁵ cannot agree with either Liepmann or Labhardt⁴¹ that the assumption of a heterogeneity between fetus and mother is such an absurdity as they claim it to be. That the embryo, as the product of the ovicell, may be at least to a certain extent heterogeneous (*art-fremd*) is well in accord with the experiments of Metchnikoff who found such a condition existing between spermatozoa and the animal that furnished them. By injecting spermatozoa into the animal he produced specific antibodies. This idea of a sort of heterogeneity between fetus and mother seems also perfectly in accord with Weis-

mann's theory of the continuity of the germ plan and with the fundaments of Haeckel's biogenetic theory.

Complete reviews of all the various chemical and biological theories of eclampsia can be found in a "Sammelbericht" by Mathes⁵⁶ and in a paper of Sikes on the "Pathology of Eclampsia in the Light of Recent Work"⁵⁷.

AMNIOTIC FLUID. Experimentation upon animals and certain clinical observations have a long time ago established the fact that the amniotic fluid is chiefly a transudation from the maternal blood. It is extremely probable that only in later stages of pregnancy fetal urine is secreted and voided into the amniotic sac. This conception of the origin of the amniotic fluid has of late been confirmed by investigations of Gruenbaum⁵⁸ into the respective molecular concentration of maternal and fetal blood. It was suspected that the epithelial covering of the amnion may play an important part in this process of transudation and Mandl⁵⁹ has now actually succeeded in demonstrating distinct morphologic peculiarities in the amniotic epithelium which do not permit any doubt concerning the active function of this epithelium in the production of the amniotic fluid. Bondi⁶⁰ simultaneously but independently from Mandl made studies in the same direction and came to identical results. Polano⁶¹ who a few years ago as the result of biologic investigations has advanced the theory of such an excretory action of the amniotic epithelium is convinced of the reliability of Mandl's and Bondi's observations and their interpretation.

CARCINOMA. An attempt to sketch the present status of the cancer problem—of course only as far as uterine cancer is concerned—seems a hopeless task. The widely different opinions of the numberless workers in the field find their expression in an immense literature, a complete consideration of which is impossible within the limits of this review. Only a few of the most noteworthy papers can be selected. It is obvious that this selection of necessity is influenced by my personal views concerning the problem, but I shall endeavor to also quote unbiased the opinion of writers with whom I cannot agree.

The literature of the past few years has abounded with articles pertaining to Wertheim's radical abdominal operation. Some writers were enthusiastic, others rather sceptical, and very conservative observers warned both sides and suggested to wait quietly until the test period of five years had passed for a number of these operations, sufficiently large to permit reliable conclusions as regards the curative effect of these undoubtedly dangerous operations. These five years have ended and the situation seems discouraging. Wertheim and shortly afterwards Mackenrodt and Amann and a few others had begun their fight for extended radicalism in cancer operations by claiming the necessity of a systematic and complete removal of all

lymphglands and lymphvessels connected with the uterus. The physical impossibility of such a plan of action was soon recognized, and the demands were reduced to a removal of the parametrium and of certain groups of lymphglands, as a rule including all the enlarged or palpable ones. In my review, published last January, I could state that the accent seems to lie on "parametrium". In 1905 the systematic search for lymphglands has met its Waterloo, and everybody seems clinging to that last straw—the parametrium. In 1904 Wertheim⁶² announced that the carcinoma has recurred in every one of his patients in whom the lymphnodes were found involved at the time of operation. The effect of this statement is in my opinion most distinctly expressed in the sudden change of position of such men as Sampson or Werder. Only a few years ago Sampson devised a method of resection and implantation of the ureter in order to enable a complete eradication of the uterus together with all the lymphglands and the connective tissue within the pelvic cavity. To-day he⁶³ writes: "We must concede that the percentage of cases which we can cure by the removal of the pelvic lymph nodes, if they are involved by cancer, is small, so small that it may be more than offset by the increased primary mortality which is incident to prolonged operation. I believe, however, that if at the close of the local operation the patient is in good condition, that the removal of the easily accessible (*sic!*) iliac lymph nodes is indicated, for it is of prognostic value any way and is undoubtedly of some curative value in a small percentage of cases." Werder⁶⁴ begins an article just published with the justified claim that the priority for that radical operation, which to-day goes under the name of Wertheim's abdominal methods, belongs to him, and concludes this same article with an endorsement of the vaginal route which has of late been adopted by him. Of course, vaginal route always means disbelief in the value of an extirpation of lymph glands.

How unsettled conditions are can be seen from the trend of opinion as expressed at the last year's meetings of such representative bodies as the American Gynecological Society, the German Society of Gynecology and the Gynecological Section of the British Medical Association.

The question whether to operate *per abdomen* or *per vaginam*, or in other words, whether to completely disregard the glands, seems settled for the American gynecologists. At Niagara Falls⁶⁵ a symposium was held on the subject: "Abdominal versus Vaginal Operation in Uterine Cancer," but the more appropriate title it seems would have been: "The Vaginal Operations." All speakers concurred in the advantages of the vaginal route and not one seemed to have to say very much in favor of laparotomy. In Kiel²⁷, on the other hand, very little doubt was left that the German gynecologists, who in general

more often than the Americans and for more various purposes operate through the vagina, at present consider the abdominal route the only one adapted for dealing with uterine cancer. Certainly there still are some prominent Germans in favor of the vaginal operations, e. g., Olshausen, or Kuestner and Doederlein at least for corporeal cancer, but they are decidedly in the minority.

In Leicester a good number of the British gynecologists seemed to prefer the vaginal route, while the guests present at the meeting, Wertheim of Vienna and Kelly of Baltimore, spoke in favor of the abdominal methods.

This difference of opinion is, as Ries in a signed editorial⁶⁶ rightly states, the more surprising as it is seen that the essayists of the American meeting based their conclusions almost exclusively on the statistics resulting from the work of the very same German investigators who therefrom drew just the opposite conclusions. It seems to me that the conclusions of the American gynecologists are not altogether illogical. The search for lymph glands undoubtedly proved a failure, and in this way can be construed as a weighty argument in favor of the vaginal route. The Germans, on the other hand, are optimistic and are not yet ready to give up hope. At Kiel the question was thoroughly discussed whether the results so far obtained justify a further development of the so-called radical abdominal operations. Although discouraging to a certain extent the abdominal methods, in the opinion of most speakers, still justify the hope that ultimately they will yield better results than the vaginal operations. Wertheim made this point in Leicester and advanced some figures which seem to vindicate his persistence. Baisch⁶⁷ in considering the lymph gland questions concedes the discouraging features of Wertheim's experience. But he does not believe that the abdominal operations can be fought, as is done by some, solely on the lymph gland issue. Abdominal operations offer a better protection against injuries of the ureter and Schuchardt's vaginal operation, the only type of vaginal operation which can be considered to-day, entails too great a loss of blood. Doederlein⁶⁸ does not give up hope that better results will be obtained with the extirpation of lymph nodes. He removes only the enlarged, palpable ones and makes, as first suggested by Kroemer⁶⁹, the removal of the glands the first step of his operation. In a similar manner Pollosson⁷⁰ proceeds.

One of the most notable papers of the year is that of Mackenrodt⁷⁰ in which he describes his hypogastric laparotomy for the extirpation of the carcinomatous uterus, his assistant Brunet⁷¹ reporting on the results of this operation. Mackenrodt does not feel discouraged by the experience of Wertheim. He believes that the one essential feature of a radical operation for uterine cancer is the thor-

ough extirpation of the parametrium. And this undoubtedly can be better achieved by his than by means of Wertheim's operation which always leaves stumps. Mackenrodt removes together with the uterine and pelvic parametrium and the paracolpium also the roots of the broad ligaments by carefully dissecting them off from the lateral and posterior pelvic-wall, the sacrum and the rectum. Access is gained to the pelvic cavity by means of his *laparotomia hypogastrica* consisting in a curved transverse incision reaching from one to the other superior anterior iliac spine. Very excellent illustrations elucidate the very clear description of the various steps of this operation.

There is one feature in Mackenrodt's technique which must be especially emphasized, namely the preparation of the patient for operation, by first removing the cervical growth with a sharp curette, escharizing the wound and finally packing the vagina with a strip of gauze soaked in a ten per cent. solution of formalin. This gauze strip is introduced about 24 hours before the operation. Mackenrodt emphasizes that if this formalin packing is kept in the vagina longer than one day, it is liable to produce an edematous infiltration of the connective tissue within the pelvis which will interfere with operation. These formalin packings in the opinion of Bumm⁷² are likely to improve the primary results of the abdominal operations by guaranteeing a better asepsis. They were also favorably spoken of by Howard Kelly at the meeting of the British Medical Association.

The paper of Brunet⁷¹ may serve as a good example of an excellent clinical report as usually furnished only by German clinics. If clinical material is so closely studied in all its aspects, the conclusions drawn from such observations are worth our attention. In a total of 70 cases in 30 instances metastases were found in the vagina, and thus it should be accepted as a rule to extirpate the upper third of the vagina in every case of cancer affecting the lower portion of the uterus. While loose under normal conditions the connective tissue between bladder and uterus in many cases of uterine carcinoma is found firm and dense, due to either an inflammatory or cancerous infiltration. This fact explains the comparative frequency of injuries of the bladder in radical operations. Brunet confirms by exact histological investigations the contention of previous writers that small carcinomatous metastases in lymph nodes may disappear spontaneously. In this connection attention must be called to a paper of Koblanck⁸⁰ which deals with the participation of bladder and ureter in carcinomatous processes. He also believes that injuries of these organs during operation to a large extent are caused by the extension of the cancer to these organs. Zangemeister⁸¹ shows how such an affection of the bladder can be recognized by a cystoscopical examination and may help in the decision concerning the operability of the special case.

Of course, nothing can as yet be said about the permanent results of the Mackenrodt operation. For the next five years this operation will be safe against attacks. It can easily be seen, how this generally accepted test period of five years thus protects the inventor of a new cancer operation and also retards the development of the operative treatment of uterine carcinoma. If the advantages of a new method are not very striking, its exploitation for the first five years often practically remains in the hands of its inventor, and this is decidedly undesirable. This will possibly prove true for a new method of Latzko⁷³. He believes in the advantage of a systematic removal of all lymph-glands, but realizes that none of the known operations does permit such a removal, he, therefore, devised a new operation by means of which he extirpates uterus and parametrium together with the external and internal iliacal, hypogastric and deep lumbar glands. Mackenrodt e. g., in order to test his operation performed it of late on all his patients, but not because he was dissatisfied with his former igniextirpation, as some writers seem to believe. Mackenrodt begins his paper on the hypogastric laparotomy⁷⁰ with a final report on his vaginal thermocautery operation, and emphasizes that as far as permanent cures are concerned this operation still stands unsurpassed by any known cancer operation. This statement was certainly unknown to Ries, when he in the editorial, already quoted, facetiously wrote: "What is the use of talking of igniextirpation *per vaginam* when the father of the method has abandoned it in favor of the abdominal work?" Ries's remarks, as can be easily seen, refer to a paper of Gellhorn⁷⁴ in which for theoretical reasons he defends a vaginal operation with Schuchardt's paravaginal incisions, the whole operation being performed with the actual or the thermocautery. I say "theoretical reasons" because it seems to me that these reasons will be "practical" only when we shall possess the mortality percentage of this particular operation. It is not entirely fair to base all deductions, as Gellhorn of necessity does, on the mortality percentage of the plain Schuchardt operation in the hands of such expert vaginal operators, as the inventor of this operation, or Schauta. I believe that Gellhorn is fully justified in claiming that igniextirpation combined with the paravaginal incision must be expected to yield results equal to those of any of the radical abdominal operations. This operation, however, can not be recommended for general use without depriving it of its one great advantage over abdominal operations, namely its lower immediate mortality. A Schuchardt operation is a decidedly difficult operation and should be attempted only by a man who is thoroughly familiar with vaginal methods. Werder's views⁶⁴ are practically identical with those of Gellhorn and are undoubtedly influenced by the latter. But Werder, like most of the defenders of the vaginal route in Niagara Falls, does not

lay enough stress upon the fact, that to-day by vaginal operation for cervical carcinoma only the Schuchardt operation can be meant, because only this operation permits a thorough removal of the parametrium, and the complete extirpation of the parametrium is the one thing to which we at present have to pin our faith. The whole parametrium question is clearly set forth by Pankow⁷⁵ in a very interesting paper which has just appeared. An infiltration of the parametrium is by most authorities considered a strict contraindication against operation, but he shows that we have no means of discerning before the operation between an inflammatory and a cancerous infiltration. His point, that we undoubtedly very often mistake an inflamed for a carcinomatous parametrium, refuse to operate and thus condemn a patient to death, is well taken, and cannot fail to appeal to every physician. He seems well justified in proposing to perform an exploratory laparotomy in every patient who seems able to stand such an operation. If the case by inspection and direct palpation is found to be inoperable, at least a prophylactic operation such as the ligation of arteries could be performed to the advantage of the patient. Pankow's paper is in my opinion one of the most forceful arguments in favor of a routine abdominal operation. Of course, for certain cases e. g. a beginning cervical cancer in a very stout patient, or possibly for all cases of cancer of the *corpus uteri* (Doederlein) the vaginal route will remain preferable. Vaginal hysterectomy is considered by Condamin⁸² the ideal method for the extirpation of the pregnant carcinomatous uterus up to the sixth or seventh month of pregnancy. But the future seems to belong to the abdominal operations.

All the German gynecologists have adopted a uniform mode of calculating the percentage of permanent cures, so that a direct comparison of their results, as expressed in their "absolute Heilungsziffer," is both possible and feasible. From such a comparison one can deduce two very evident facts: 1, that the percentage of permanent cures is steadily increasing; 2, that the percentage of those cases which by the various gynecologists are considered still within the limits of operability, is also steadily growing. Thus Pankow reports that in the clinic of Professor Kroenig of Freiburg at present 87 out of every 100 cancer patients seen in the clinic are regarded suitable for a radical operation. Both these facts are by most writers explained by the improved methods of operation. If we, on the other hand, consider the evident failure of the lymph gland problem, which undoubtedly discredits the efficacy of all the later radical abdominal operations, this explanation does not any longer seem satisfactory. I feel encouraged in my belief, for which, however, statistical proof hardly can be furnished, that this undeniable increase in the percentages of operability and permanent cures, to a very large extent is due to the fact, that both the physician and the lay public do know more about the earlier symptoms of uterine carcinoma, at least in Germany. Thus

Winter's suggestion for a satisfactory solution of the cancer question still holds good: Early diagnosis and early operation! If performed early the operation does not need to be one of the dangerous type. Spencer⁸³ records three permanent cures after high amputation of the cancerous cervix during pregnancy, and Vassmer⁸⁴ advances reliable proof that an incipient carcinoma can be permanently removed by a curettment.

The literature records attempts made to bring help to those, whose cancer has recurred after an operation or to those, to whom no hope of cure not even by means of a dangerous operation can be held out. Doederlein and Rosthorn⁷³ have extirpated recurrent growths, the latter claiming that the prognosis for recurrences in the connective tissue is somewhat better than for those in glands, the latter always necessitating more complicated operations.

Doyen's cancer serum does not cure cancer, as claimed by its inventor, according to the report of a special committee appointed for the purpose of investigating its efficacy. That, however, a great deal can be done to relieve the sufferings of the incurable patients and to actually lengthen their lives is shown in an exhaustive treatise of Reclamier⁷⁷. This monograph contains a record of satisfactory results obtained with nerve resections in cases of excruciating pain. The prophylactic operation consisting in the ligation of the uterine arteries, is highly spoken of by De Ronville⁷⁶ who quotes the reports of thirty-two cases collected from literature. The treatment of advanced cases is considered by Boyce⁷⁸ and Chrobak⁷⁹ who points out the responsibility of the community to make the life of the incurable patients bearable by providing special sanitariums.

MYOMA. The reasons for the almost sudden change of time honored conservative ideas concerning uterine myoma into the extreme radicalism of the last few years are easily found in the improvement of the technique and the results of myoma operations, and in the eagerness of many writers to enumerate the manifold dangers of uterine myomata. They consist in simple degeneration, in transformation into malignant newgrowths, in impairment of the general health of the patient by affecting the heart, the function of the kidneys and so on. The term cachexia, which usually is applied only in connection with malignant tumors, is today surprisingly often used in speaking of the general effects of uterine fibroids. If some writers plead for the extirpation of every myoma immediately on diagnosis, they apparently do not believe in a very marked clinical difference between carcinoma and myoma. Such a view certainly is exaggerated, and we see with satisfaction that the pendulum begins to swing backwards from this extreme radicalism.

Baldy⁸⁵ does not believe that degenerations are so extremely common. He contends that Noble's estimate, that 16 per cent. of 1,188

patients would have died without an operation because of degenerations in the tumors, is pure guesswork, and consequently too inexact to be accepted as a fact. Baldy denies Noble the right to claim that the mortality of early operations for uterine fibromyomata is about 1 per cent. Two hundred and forty-eight patients have been operated by himself within the last ten years with a mortality of 8.4 per cent. in the total number and of 2.85 per cent. in the last 105 operations.

Nevertheless Baldy believes like Noble that every fibroid should be extirpated on diagnosis, but "not from any fear of degeneration" but because "fibroid disease of the uterus is not a local disease alone, but the process is practically a general one in that it involves in one way or another organs, how many and to what extent and how early we are unable to tell." The argument given in this last sentence certainly is not very clear, but Baldy also does not pay enough attention to the fact that Noble speaks only of the mortality of "early operation," as a whole this paper must be regarded a rather weak attack upon the views of Noble and his supporters.

From a study of 210 cases treated surgically Clarence Webster⁸⁶ concludes that the widely held view as to the comparative harmlessness of uterine fibroids needs to be greatly modified. These new growths positively increase the morbidity and mortality of those women in whom they occur. He apparently agrees with the opinion "held at the present time by the majority of gynecologists" that all large or growing tumors or small ones, which cause troublesome or serious symptoms, should be treated surgically. Supravaginal amputation is accepted by him as the routine operation, although he cannot deny that in consideration of the comparative frequency of an association of malignancy with fibroids the total extirpation is the more scientific procedure. Davis⁸⁷ feels justified in definitely advising against operation only if the fibroid does not cause any untoward symptoms in a woman nearing menopause, or past it, and is positively convinced that the tumor is distinctly atrophying. I think, in practice this is identical with operation on every tumor. Good reasons for early operation are advanced by Dobbert⁸⁸. Early operations are easier, have a decidedly smaller mortality and more often permit the preservation of the uterus. But he emphasizes that he does not want to be understood as recommending operation in every case.

A most satisfactory consideration of the scientific aspects of the various indications for operation is found in a long article of Winter in the "Festschrift fuer Olshausen,"⁸⁹ and in two shorter papers by the same author^{90 91}. He wants operation limited to those cases in which distinct disturbances are caused by the presence of a uterine fibroid. He operated on 45 per cent. of all myoma patients seen by him. The indications for operation arranged according to the frequency with which they necessitated interference, are given by him in

the following order: First, hemorrhages, secondly, pain, thirdly, bladder troubles. Fibroids undoubtedly have an unfavorable effect upon the heart muscles and sometimes cause changes in the cardiac valves. Such affections of the heart also constitute an important indication for surgical interference. He emphasizes that myomas strikingly often demand operation just during the menopause⁹¹. This point seems of special interest because very many writers still believe in the favorable influence of the climacterium upon a myoma. Mackenrodt⁹³ points out the danger of this prevalent view while demonstrating before the Gynecological Society of Berlin a case of sarcoma in a woman 75 years old. A myoma was observed in this patient for the last twenty years and the tumor during all this time apparently did not grow. In a paper of Martin⁹³ on the indications for operations menopause plays an important role. He accepts supravaginal amputation as the routine treatment of all fibroids presenting symptoms in women under 45 years, and finds uncomplicated tumors of medium size suitable for such treatment as galvanism and ligation of the arteries. Interesting in connection with the still advocated extirpation of the ovaries as a prophylactic operation in cases of large myomata, is a report of Bovee⁹⁴ of four new cases (others are quoted by him from the literature) in which a uterine fibroma developed subsequent to a bilateral salpingo-oophorectomy. Haultain⁹⁵ considers a hysterectomy indicated in the majority of interstitial and submucous fibroids which give rise to symptoms and reduce a woman's health, comfort and usefulness. But when no symptoms are present, no treatment is necessary and "it is unwise to tell the patient that the condition exists." We do not agree with the last part of this rule. Such a practice is dangerous for more than one reason.

The preceding reviews in my opinion prove that the adherers of extreme radicalism at present are in the minority. But the word radicalism, like the word conservatism, in connection with fibroid operations, has two distinct meanings. We may understand by radicalism the advice to operate on every case immediately on diagnosis, and then logically have to apply the term conservatism to the principle, still defended by a few men, that our first attempt should be to leave the myoma alone or treat it without extirpating it. Engelmann⁹⁶ details the result of such conservative therapeutics in 1,400 cases. He describes the advantages of hypodermic ergotine injections, continued for a long time, of the Apostoli treatment and most of all of general hygienic measures. His views are very conservative. He does not claim any miraculous cures, but he forces the careful reader to acknowledge that satisfactory results may be obtained with such entirely conservative measures, and that certainly not every myoma demands surgical interference. Henkel⁹⁷, in tabulating the myoma patients seen in the famous Olshausen clinic of Berlin, exhibits the most

noteworthy fact that of 927 patients with a uterine myoma only 149 were subjected to an operation, i. e., 16 per cent., and it just so happens that Olshausen in going over the records of his private cases also found a percentage of 16 for the operated cases. Pincus⁹⁸, commenting favorably on the conservatism of Olshausen's clinic, emphasizes the great advantages of athmocaesis in the control of hemorrhages from a myomatous uterus.

The other meaning of radicalism and conservatism respectively was created by the discussion among gynecologists whether the uterus should be removed or the operation on principle limited to the enucleation of the tumors. Conservative myomectomy is to-day less favored than a very few years ago. In a discussion before the Congress of German Naturalists in Meran⁹, Winter concluded an analysis of his personal experience with the statement that myomectomies give decidedly less satisfactory results than the radical operations and, therefore, the first mentioned operation must be reserved for carefully selected cases. Martin refused to accept Winter's arguments and defended his well known position in favor of conservative myomectomy. Kroenig, on the other hand, repeated his radical views, which are so clearly set forth in that new splendid textbook of operative gynecology of Doederlein and Kroenig⁹⁹. Kroenig agreed with Winter concerning the necessity of a radical operation just when the patient is near the menopause. Graf¹⁰⁰ from a study of the cases of the Schauta clinic confirms Winter's opinion that conservative operations must be limited to definite indications. The results certainly do not justify the claim of certain writers that myomectomy should be the routine operation. The views of Deaver¹⁰¹, as expressed in a paper just published, are practically identical. Myomectomy is suitable only in comparatively few cases. His operation of choice is supravaginal hysterectomy. Operation is performed only when the tumors produce symptoms. Alban Doran¹⁰² is also in favor of supravaginal amputation with preservation of the ovaries. Essen-Moeller¹⁰³, however, obtained the best results with total hysterectomy. He was rather dissatisfied with myomectomy, believes, however, that the justification of this operation is established by the fact, that patients may become pregnant after this operation.

Very valuable contributions have in the last year appeared on the question of degeneration and complication of the uterine fibroids. The first place must be conceded to an exhaustive monograph of G. Piquand¹⁰⁴. The same author utilized the immense material at his disposal for very interesting special articles on sarcoma of the uterus¹⁰⁵ and the complication of fibroids with carcinoma¹⁰⁶. These papers deserve the attention of all gynecologists since they are destined to clear some of the obscurer views in the question of degeneration of uterine fibroids. The frequency of a sarcomatous degeneration is by the au-

thor estimated as 2 per cent. In considering the relation of myoma to carcinoma he thinks that the evidence shows that between 3 to 4 per cent of all cases of myoma are complicated by a carcinoma. A myoma seems to predispose the development of a carcinoma of the cervix. This must be regarded an important argument in favor of total extirpation against supravaginal amputation. The coincidence of myoma with a cancer of the uterine body is a not by any means uncommon occurrence. Piquand collected 179 cases of this kind. Since corporeal carcinoma is found 8 to 9 times more often in a myomatous than in a non-myomatous uterus, a further proof is furnished for the conclusion that myoma actually favors the development of a carcinoma. Piquand considers the frequency of the coexistence of a myoma and cancer a powerful argument in favor of immediate operation of every fibroid, especially if the patient is near the menopause. Cullen advanced the theory that myomata by interfering with the nutrition of adjacent tissues act as chronic irritation and that the latter plays an important role in the etiology of carcinoma. Goffe¹⁰⁷ demonstrated before the New York Obstetr. Society two uteri which in his opinion confirm Cullen's theory. Another very interesting case, which lends support to the irritation theory, is reported by Seht¹⁰⁸. He found in the endometrium of a sarcomatous uterus circumscribed areas in carcinomatous degeneration. Toupet and Lebre¹⁰⁹ consider a sarcomatous degeneration of a myoma not particularly rare. They describe a case in which metastases were found in the lungs, an occurrence of extreme rarity. According to Lewis¹¹⁰ sarcomas arising from uterine myomas are by no means common. Their frequency is variously estimated from less than one to 3 and 4 per cent. (Franque). Carcinoma is a more frequent accompaniment. The writer enumerates all the different etiological and accidental causes for the coexistence of these two new growths and also mentions the possibility of the extension of a carcinoma from a neighboring organ to a uterine myoma. A very interesting example of such an invasion of a uterine myoma from an ovarian carcinoma is described by Bauereisen¹¹⁰.

Among the rarer complications caused by fibroids must be mentioned their complete detachment in the form of migratory fibroids, and intraperitoneal hemorrhages. Reuben Peterson¹¹² and Knott¹¹³ consider in detail this peculiar phenomenon of a complete separation of a sub-serous myoma, probably as the result of a twisting and secondary necrosis of the pedicle. A most uncommon accident is a fatal intraperitoneal hemorrhage due to a rupture of large subperitoneal veins. A case of this kind has been recorded by Stein¹¹⁴, and two others by Pollosson¹¹⁵, who calls attention to the fact that the clinical picture of such an unfortunate occurrence closely resembles the rupture of an ectopic pregnancy.

In concluding this review of the literature on myoma short men-

tion must be made of a few papers dealing with the etiology of myoma. The frequency of pathological changes in the ovaries in cases of uterine fibroids is well known. Malcolm Campbell¹¹⁶ bases upon this fact a most peculiar hypothesis. He considers these changes in the ovaries to be primary. In his opinion such ovaries may produce a pathological internal secretion which acts on the uterus in such a way as to lead to an *irregular* and *asymmetric* hypertrophy of the tissues of the uterine wall. The source of this rather queer hypothesis is interesting enough to be quoted here. He develops his theory as a "striking parallel" to the theory of a suppression of ovulation during pregnancy. The energy thus conserved is during pregnancy expended in the production of an internal secretion, which leads to the *uniform* and *symmetrical* hyperplasia of the muscular tissue of the uterus. Internal secretion should not be abused in this manner! Henkel⁷⁹ also makes use of the internal secretion theory, but in a quite different way. In his opinion the ovarian changes are secondary. The hypertrophy and the increased function of these ovaries help to neutralize the action of certain toxic substances produced by the muscular tissue which newly forms under the stimulating influence of the imbedded myoma.

Pinard¹¹⁷ while considering the causes which favor the production and the growth of fibromyomata of necessity discusses the relation of sterility to uterine myoma. Pinard believes that the absence of pregnancy predisposes and that pregnancy distinctly protects the individual against myoma. He claims that impregnation, in order to act as a real protection, must also be followed by all the physiological stages which constitute the complete function of reproduction. Thus abortion, or even a full term labor, if not followed by lactation, do not act as reliable safeguards. Late fertilization and voluntary sterility must be considered etiologic factors of great importance. "If you find a primigravida of over 30 years" writes this author, "*cherchez le fibrome.*"

OVARIAN TUMORS. A very ingenious theory concerning the etiology of hydatiform mole, the product of painstaking investigations and clever thinking, has collapsed. A few years ago it was recognized that the small cysts so generally found in the ovaries of cases of vesicular mole and also of chlorio-epithelioma belong to the rather uncommon group of corpus luteum cysts. This discovery was made at about the time when Fraenkel's theory of the influence of the corpus luteum upon the development of the fertilized ovum had proved a most fruitful field for scientific research. It was suggestive to look for an etiologic relation between hydatiform mole and the cystic degeneration of the corpus luteum occurring in this condition. An apparently very satisfactory explanation for this striking co-existence of these pathologic conditions in ovum and ovary was offered by Pick.

A majority of recent writers had just begun to accept Pick's theory as an established fact, when two publications, the one by Wallart¹¹⁸, the other by Seitz¹¹⁹, disclosed the utter fallacy of this interpretation. These two writers found that the hyperplasia of lutein substance and the formation of lutein cysts in atretic follicles are typical occurrences in the course of every normal and abnormal pregnancy. Fraenkel¹²⁰ in a recently published paper makes some objections to Wallart's claim that in normal pregnancy as well as in vesiculat mole there exists an overproduction of lutein substance which is diffusely distributed in the ovarian tissue. Fraenkel emphasizes that we define a lutein cell as an epitheloid cell which contains a yellow pigment and lies in a corpus luteum. It is true that during pregnancy certain cells in the ovarian stroma enlarge and do contain some pigment, but it seems unjustifiable to pronounce them lutein cells, as Wallart does, before their emigration from the corpus luteum into the ovarian stroma has been actually observed.

One of the two subjects placed for discussion before the Congress of the German Society of Gynecology²⁷ was "The Results of Ovariectomy". Two very able and comprehensive papers were prepared by Hofmeier and Pfannenstiel. Polano¹²¹ gives a resume of the extremely interesting discussion in which the various German clinics submitted the statistics of their ovariectomies. Only a few of the more important facts can be mentioned here. The results of extirpation of benign tumors were uniformly good, those of malignant tumors generally bad. Attempts to improve the results of the latter group by removal of lymphglands have failed. In cases of bilateral malignant growths decidedly better lasting results were obtained when the uterus was removed with the ovaries. The ablation of the other ovary on principle in case of a malignant growth in one ovary, as advised by some operators, seems not advisable because such practice increases the immediate mortality of the operation without giving better lasting results.

Much difficulty is experienced at the present time in differentiating distinctly between benign and malignant ovarian tumors. Of course, carcinoma, sarcoma and epithelioma are malignant growths, but it is impossible to properly classify e. g. solid embryomas (teratomas) or especially the papillary cystomas, which histologically are benign, clinically malignant. One cannot help being impressed by the existing confusion in the nomenclature when reading the "Referat" of Pfannenstiel. He e. g. divides the papillary cystomas into benign and destructive, the latter representing a preliminary stage of carcinoma. And the situation promises to become still more complicated. Eversmann¹²², Bell¹²³ and Ulesco-Stroganowa¹²⁴ describe a few new cases of Struma Ovarii Colloidalis. This term designates an ovarian

tumor which in its histological structure resembles, or probably is identical with a thyroid adenoma. Stroganowa's new case seems to lend strong support to the one theory which considers this tumor to be a teratoma, in which a cause, so far unknown to us, leads to such a proliferation of thyroid elements that all the other elements commonly found in teratomata are suppressed. This tumor must clinically be classed as malignant. I should like to call the attention of the neurologists to this latest type of ovarian tumor. It does not seem entirely impossible that in some obscure cases of Graves' disease the struma could be detected in the ovary. Pick again presented us this year with a few new ovarian tumors. He defends¹²⁵ his Epithelioma Chorio-Ectodermale Ovarii against Michel and describes in another paper¹²⁶ two ovarian tumors of a most peculiar type. The one is an adenoma formed by the proliferation of typical endometrium within the ovary. This growth is named Adenoma Endometriodes Ovarii. The other tumor is called Adenoma Testiculare Ovarii and results from an adenomatous proliferation of the *tubuli seminiferi* of a testicle. True hermaphroditism, that is, the presence of both ovary and testicle in the same individual, has been actually observed by Salen and Simon, so that theoretically no objection can be made against this new form of true hermaphroditism. Pick did not find any spermatozoa in this testicular tissue, lying in such dangerous proximity to ripening ova,—at least he does not mention this fact—and this is rather gratifying, otherwise we should see ourselves forced to admit the possibility of parthenogenesis in the human female.

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PEDIATRICS.

IN CHARGE OF

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FEEDING OF INFANTS. This subject has occupied its usual prominent place in the year's pediatric literature. It is a striking fact however, that despite modern advances in substitute feeding, the statistics of mortality still show that the artificially fed infant is at an enormous disadvantage as compared with the breast fed baby. More and more attention is being paid to the question of conserving the power of mothers to nurse, and to the means of attaining this end. It is encouraging to note that one of Germany's foremost pediatricists, Finkelstein, of Berlin, takes strong ground¹ against the view that the power to nurse is on the decline, supporting his contentions with most interesting statistical evidence.

With reference to substitute feeding, it is noteworthy that the percentage system of feeding, so strongly advocated by the American school, has not found a ready acceptance abroad. It is needless to revert here to the details of the method—though attention may be called to the fact that even in America it is now admitted that exact laboratory modification is not necessary; that home modification under proper supervision will answer for the great majority of cases.^{2 3} Holt⁴ calls attention to the fact (long ago noted by Biedert) that disturbances of digestion resulting in excess of fat are quite as serious if not as obvious, as those which follow the use of too high proteids. It is noteworthy that chronic constipation (to remedy which the fats are usually increased) may also be greatly aggravated by such feeding. Aside from the question of the percentage feeding, much attention is being directed to the question of securing a clean milk supply on the theory that no amount of modification will make a bad milk good—while with pure milk simple graded dilution will usually answer. Goler⁵ urges the establishment of municipal bureaus of milk inspection under medical control. Such bureaus should ensure the cleanliness of the cattle, stables and handlers—should supervise the character of the food given to the cattle. All cattle should be tuberculin tested. There should be a bacterial standard of not over 100,000 bacteria to the cc. and milk should be furnished with a nutritive value of 12.5 per cent. solids, 4 per cent. of which must be fats. It will be noted that these are substantially the requirements of the so-called Milk Commissions of some of our cities, and there can be no question but that the adoption (and enforcement) of such regu-

lations as these by our municipalities would go a long way toward solving some of our problems of substitute feeding. Hippius⁶ recognizing that, under existing conditions, the milk in our larger cities is not safe, given raw, has made a careful study of the results of pasteurization. He finds that by this process most of the pathogenic germs are destroyed, that chemically the milk is hardly affected and that the most important biologic properties of raw milk (the various ferments) all withstand the process properly carried out. Edsall and Miller⁷ report very satisfactory results from the use of predigested legume (bean) flour. Extremely concentrated food may thus be given, in fluid form, partially digested. Proteids up to 1 per cent. can be given. Atrophic infants did particularly well on the food. The continental authorities continue to report excellent results from the use of buttermilk (prepared with cane sugar and wheat flour) in athreptic conditions.^{8,9} Attention has also been called to the value of this food in rickets where it would appear to be especially valuable in causing a disappearance of the intestinal fermentation.¹⁰ Kassel¹¹ has experimented with a condensed buttermilk which he has found very satisfactory, but which he recommends for use only in the event that fresh buttermilk cannot be obtained.

GENERAL HYGIENE. The subject of school hygiene is receiving more and more attention. It is being recognized more and more clearly, that under the mental strain of school work many predisposed children develop various neuroses, and there is a growing belief in the wisdom of "guarding every grade in our public school system by a physical as well as a mental examination, which would prevent the development of a considerable portion of the neurotic diseases now so prevalent among school children" (Rachford)¹². The wisdom and value of medical inspection of schools are everywhere insisted upon¹³. Meyer¹⁴ has made statistical studies of the nervous diseases of school children, while Wasserman¹⁵ discusses the school in relation to infectious disease.

DISEASES OF THE NEWLY BORN. Porak and Durante¹⁶ made careful studies in 2,603 cases from the Pavillon des Debiles (Paris). Eight hundred and thirty-two of these (32.6 per cent.) showed some form of umbilical infection shortly after birth—499 mild, 333 severe. The latter category included cases of fetidity, gangrene, hemorrhage, abscess and erysipelas. A complete review of the subject with appended bibliography is given. Griffith¹⁷ calls attention to umbilical cord hernia. While the congenital form is much more rare than the acquired, it does occur, and is very apt to be overlooked. If such a condition exist, and a ligature be applied, the results must necessarily be very serious. In all cases where that portion of the cord next to the body is decidedly swollen, the child should be examined very carefully before a ligature is applied. In these cases if the hernia be not easily

reducible, the best prospects are offered by early radical operation.

SPECIFIC INFECTIOUS DISEASES. Scarlet Fever. There is still much discussion as to the etiological relation of the streptococcus group to scarlet. Jochmann¹⁸ holds that while the streptococcus can not as yet be held to be the specific exciting cause of the disease, it is certainly to be held accountable for a great number of the most serious complications. Rossiwall and Schick¹⁹ demonstrated streptococci in the exudates of scarlatinal anginas—but agglutination tests showed that they dealt with a group organism. According to the studies of Detot and Bourcart²⁰ streptococcus agglutination tests in scarlet gave varied and inconstant results. They do not feel justified in drawing conclusions as to the practicability of a serum diagnosis of scarlet, nor as to the question of the specificity of this germ in this disease. Tileston and Locke²¹ studied the blood in scarlet. They find a slight anemia with a characteristic leucocytosis up to the 8th day. This leucocytosis is a true one, i. e., there is an increase, absolute and relative of the polymorphonuclears. With the onset of defervescence, there is a constant eosinophilia. Complications exert little influence upon the blood picture.

Regarding treatment, D'Andrea²² reports very good results in four very severe cases from the intravenous injection of bichloride of mercury, 2-4 mg. The results from the treatment with antistreptococcic serum, have, on the whole, been disappointing. Quest²³ reports 20 cases, Gaughofner²⁴ 23 cases, and Mendelsohn²⁵ 150 cases, so treated, without appreciable benefit. On the other hand, Bokay²⁶ has found the treatment to be of real value in some cases. Since Widowitz published his studies on the prophylaxis of scarlatinal nephritis, by the urotropin treatment, there has been a good deal of discussion of the method. Widowitz gives urotropin, in appropriate doses, during the early days of the infection, then stops its use, to renew it at the beginning of the third week. He claims to have had excellent results. Preisich²⁷ reports his study of the method. Of 600 cases of scarlet treated with urotropin late, 55 (9.1 per cent.) developed nephritis. Of 600 cases treated without urotropin (under similar epidemiological conditions), 82 (13.6 per cent.) developed nephritis. But of 376 cases in which treatment was begun on the third day, only 8.8 per cent. developed nephritis, while in 315 seen early, but not so treated, 17 per cent. developed nephritis. Garlipp²⁸ did not get such favorable results; but Kiroff²⁹ believes the treatment to have distinct prophylactic value.

DIPHTHERIA. In discussing the heart failure of acute diphtheritic toxæmia, Bolton³⁰ says that we have in this condition both an extensive fatty cardiac degeneration, and acute degeneration of the motor nucleus of the vagus, a disturbed innervation of an acutely degenerated heart. The heart failure exhibited by patients who nevertheless recover, is probably the result of similar though less extensive changes.

Concerning diphtheritic cardiac dilation, Dietlen³¹ says that percussion is not always to be relied on in its diagnosis. He finds that in most cases, the heart recovers its muscular tone again, though it is difficult to determine whether secondary dilation does not ensue, inasmuch as this may appear very late, after the cases have passed from observation. White³² in a carefully studied series of 83 heart lesions in 1,431 cases of diphtheria, says that the cardiac disturbance after diphtheria usually presents the picture of a mitral insufficiency, with irregular heart action and few symptoms. Moderate disturbance of the heart is very common after diphtheria, persisting from two to six months. Cases where the lesion lasts even longer than this, may ultimately clear entirely, however. The duration of the heart trouble is usually in proportion to the severity of the original illness. In the treatment of this condition, prolonged rest is an essential. Rocaz³³ notes that at times we may have a primary diphtheria of the pharyngeal tonsil. The symptoms of this condition may be summarized as the association of the ordinary signs of adenoids, with the symptoms of a diphtheritic intoxication. The prognosis is grave because of the difficulty of diagnosis. He reports ten cases. Discussing the relation of diphtheria and measles, Hellstrom³⁴ reports 112 cases of diphtheria after measles. Of these, 98 were laryngeal and the mortality was 62.2 per cent, although that of ordinary laryngeal diphtheria in this epidemic was only 27.3 per cent. Of 109 cases of diphtheria later complicated by measles, only 8 proved fatal however. Mourniac³⁵ and Pillon³⁶ report cases of post diphtheritic paralysis, promptly cured by the late injection of antitoxin, after the suggestion of Comby. The treatment is of value even in cases where the original attack was treated by antitoxin. There would appear to be a consensus of opinion as to the great value of prophylactic injection of antitoxin in persons who have been directly exposed to the contagion, or in institutions where the disease has manifested itself.³⁷ From 300 to 500 units should be given as an immunizing dose. Marfan³⁸ and Clavel³⁹ discuss the "accidents" after the use of antitoxin. Collective investigations, covering hundreds of thousands of cases show that except for various kinds of evanescent exanthems, and fugitive joint pains, no accidents have followed the use of pure antitoxin, properly administered.

CEREBRO-SPINAL MENINGITIS. During the year epidemics of cerebro-spinal meningitis occurred in various countries, in fact the disease was practically pandemic. The literature is filled with articles concerning all phases of the disease. Discussing the pathology Westenhoeffer⁴⁰ says that the principal port of entry is the nasopharynx—the tonsils being of special importance. Meningitis is primarily always basilar—and extension occurs by the lymph channels. He believes that children with the so-called lymphatic constitution are distinctly predisposed, that the method of direct infection is by inhala-

tion, and that the fight against the disease must be a distinctly hygienic one. He is not willing to concede that the diplococcus intracellularis has been definitely proven to be the specific etiologic factor of the epidemic form—though it doubtless plays an important role. The consensus of opinion however is that this germ may be considered as the definite etiologic factor. Cardamatis⁴² believes that neuropathy and alcoholism of the parents are predisposing causes of importance. An interesting summary of the symptomatology—based on the studies of 100 cases is given by Huber⁴³ and Jacobi⁴⁴ also has a most excellent general review. Loeper⁴⁵ says that polyuria dominates the syndrome. Albuminuria is not marked. Ingested drugs appear promptly and abundantly in the urine, showing renal permeability. In the severest cases this polyuria is not observed, nor is it present in influenzal, pneumococcal, typhoid or tubercular meningitis. This may be a diagnostic point of value. Curl⁴⁶ in studying the blood changes, finds the red cells normal or increased, but no leucocytosis. Relatively the eosinophiles are decreased, and the large mononuclears increased.

Concerning posterior-basic meningitis, Koplik⁴⁷ believes that most of these cases belong in the category of epidemic cerebro-spinal meningitis, although on account of the preponderance of the basal symptoms, the diagnosis from the tubercular form may be difficult. The fundus find and lumbar puncture are important diagnostic aids here. Discussing conditions which may be taken for meningitis, Baumann⁴⁸ says that it is not the occurrence of the disease itself which produces diagnostic difficulties, but rather that a number of diseases tend to assume a type simulating meningitis. The diagnoses of tubercular, suppurative and posterior basic forms are then summarized and a series of carefully studied cases is reported all of which adopted meningitic types. This list includes cases of typhoid, pneumonia, influenza, mastoiditis, sarcoma of the brain, gastro-enteritis, and renal disease.

In a discussion of the disease and its contagiousity, Buckingham⁴⁹ says that at the Children's Hospital in Boston, the cases are not isolated, but are treated in the medical wards. During the years 1896-1904, 110 cases were admitted 16 being in the ward at one time. No case has ever originated in hospital among either patients or attendants.

Considering the treatment of the disease, Huber⁵⁰ says that as yet our treatment is necessarily empirical and symptomatic. He believes that preventive hygienic measures will avail more in overcoming the disease than our remedial measures. Stockton⁵¹ summarizes the principles of treatment as requiring: Rest in a darkened room, the securing of the proper performance of the vegetative functions, the giving of hot baths, lumbar puncture to relieve pressure repeated if necessary, antipyrin for headache and hyperpyrexia with or without

opium and bromids, and mercury for its laxative effect and as an aid to elimination. Speer⁵² places reliance on bromids, chloral, hyoscyamine and cannabis indica, in full doses. Rozhansky⁵³ finds the hot bath, given once or twice daily, of great value. The general mortality of his series of 62 cases, was 45 per cent., of the cases so treated it was 33 per cent. Four cases, in which this treatment was instituted during the first days of the disease, all recovered. Kallmeyer⁵⁴ also believes the hot bath treatment to be very valuable. To it, he adds the use of arsenic, internally or hypodermically. Seibert⁵⁵ advocates the rectal injection of large doses of sodium salicylate. Waltzfelder⁵⁶ believes that he has seen very good results from the injection of diphtheria antitoxin. It should be given in larger doses than are ordinarily used in the treatment of diphtheria, and its use should be continued at intervals until all the nervous symptoms have disappeared.

There would appear to be great diversity of opinion as to the therapeutic value of lumbar puncture. There is of course, no discussion as to its value as a diagnostic aid. Many authorities have found repeated punctures, with injection of antiseptic fluid (e. g. of 1 per cent. lysol solution) into the canal, to be distinctly valuable⁵⁷. 25-50 c.c. of the cerebro-spinal fluid are withdrawn, and 3-9 c.c. of the lysol solution are injected once daily till the cerebro-spinal fluid becomes sterile. Bloch⁵⁸, Altman⁵⁹ and Jöchmann⁶⁰, all agree that the puncture has a palliative effect, especially if there be signs of great increase of the intracranial tension, that by this means, pus may certainly be withdrawn from the canal. As a direct method of therapy, however, they do not feel that any claims can with justice be made for the procedure. Lenhartz⁶¹ however, holds that repeated puncture is undoubtedly of direct therapeutic value, a view shared by Cupler⁶². Drigalski⁶³ actually recommends the leaving of a canula in the canal for days at a time, because of the value of puncture and the drainage thus established.

MEASLES. Gillard⁶⁴ reports 25 cases of measles of gastro-intestinal type, 18 of them ushered in with severe diarrhoea. The eruption, which was typical, appeared two to three days after the diarrhoea. The stools were greenish, very fetid, and numbered about twelve per day. The diarrhoea lasted from two to nineteen days. In 8 cases, four of them fatal, the onset was marked by vomiting. In the diarrhoeal cases, the temperature was subnormal throughout.

TYPHOID. Edsall⁶⁵ calls attention to the varying opinions as to the prognosis of typhoidal insanity in childhood. Of 76 cases collected by him, there was mania in 36, dementia in 26, and delirium with hallucinations during convalescence in 14. All cases of the latter category recovered. Of the others, 43 recovered, 3 died, and the rest remained unchanged. It is probable that dementia is more common after childhood than in adult life. Some of the cases are doubt-

less due to the malnutrition. Heredity would not appear to play any role.

TUBERCULOSIS. An interesting case of congenital tuberculosis, death on the 19th day of life, is reported in detail by Wollstein⁶⁶. The mother had generalized tuberculosis with lesions of the genital tract. Szontagh⁶⁷ in 489 autopsies on infants, found tuberculosis in 21.8 per cent. of all the cases. Of these cases, 68.5 per cent. were inhalation tuberculosis, while in 6.8 per cent. the infection evidently occurred through the digestive tract. Stirnimann⁶⁸ in 591 autopsies on infants under one year, found tuberculosis in 41 cases, though in 5 of these it was not the direct cause of death. A detailed analysis of the lesions is given. It is noteworthy that the lungs were affected in 36 of the 41 cases, though in no case were the pulmonary signs marked enough during life to enable a definite diagnosis to be made. The "probable" diagnosis was made four times. Heredity was a factor in 13 cases, but could be absolutely excluded in 12. The author holds that the great frequency of respiratory lesions, speaks for infection through the respiratory tract. Piettre⁶⁹ also holds that tuberculosis is above all else an inhalation disease, though he is convinced that infection through the gastro-intestinal tract, (more especially from tuberculous milk) does occur. Dudrenil⁷⁰ finds that intestinal tuberculosis, while not nearly as common as the inhalation form, still does occur frequently. He thinks that there can be no doubt that in certain cases, tubercle bacilli may penetrate through a healthy intestinal mucosa without injuring it. Therefore it is not rare to find tuberculous mesenteric glands without intestinal ulceration. Bacillary infection is however favored by pre-existing gastro-intestinal lesions, and the existence of gastro-enteritis may thus be considered a predisposing cause. To test Behring's theory of the latent tuberculosis of infancy, Beitzke⁷¹ took the blood of children from 3 days to 9 years of age, at the post mortem table. According to the theory, bacilli should have been found in the blood. Guinea pigs were inoculated, with negative results in 47 of the 48 cases. The author holds that Behring's theory of a latent infantile tuberculosis, without the production of anatomic lesion has yet to be proven. Hamburger and Sluka⁷² contribute a very careful study of the tubercular lesions in childhood, largely statistical, which does not lend itself to abstract. Hutinel and Lereboullet⁷³ believe that tuberculosis in childhood develops in stages. The first stage often comes on very early, being ordinarily consecutive to contagion, and marked by the production of a mediastinal or mesenteric lesion. The process may then remain latent, even in favorable cases, conferring a sort of immunity against later attacks on the individuals. Or, by a later process of autoinfection, the disease may progress in acute, subacute or chronic form. This stage may

again produce lesions, which are still curable, or there may be direct progression to a fatal termination.

Schick⁷⁴ discusses the diagnostic tuberculin reaction in childhood. In many cases the reaction presents no characteristics, different from those seen in adult life, but two points are worthy of note. The so-called protracted reaction where the rise of temperature persists for several days, is much more common in childhood and in many cases there is an intense reaction at the site of injection (Stichreaction of Escherich). Of course a positive reaction shows merely that a patient is either actively tuberculous, or that a tuberculous focus exists. But in childhood, there is less likelihood of the existence of old foci, and this fact lends added importance to the reaction in early life. The initial dose should never exceed 1 mg. of the old tuberculin, and for very young children even this dose is often too large.

Interesting discussions of the familial contagiousity of tuberculosis and its prevention are offered by Marfan⁷⁵ and Comby⁷⁶.

SYPHILIS. Evidence as to the frequency of hereditary syphilis is given by Neumann and Oberwarth⁷⁷. Of 69,221 cases admitted to Neumann's polyclinic in Berlin, 690 (1 per cent.) were cases of hereditary lues.

DISEASES OF THE DIGESTIVE SYSTEM. Recurrent Vomiting. This subject has engaged the attention of many pediatricists of late. It has been described as "a symptom group closely related to migraine, auto-toxic in origin, and characterized by recurrent attacks of nausea, persistent vomiting and great prostration."⁷⁸ Langmead⁷⁹ reports a typical case ending in coma, and finally, general convulsions. At autopsy, the liver was found to be enlarged and fatty. There was fatty degeneration of the kidneys, with haemorrhage into the left suprarenal. Giliberti⁸⁰ gives a complete review of the subject, with a summary of existing views. Nearly all writers are agreed that recurrent vomiting is an autointoxication, though there is much discussion as to the source of the toxins. A functional incompetency of the liver would appear to be an all important factor. Richardiere⁸¹, commenting on the occurrence of icterus in some cases says that he has found the liver enlarged in all cases, whether icterus was present or not. He believes the hepatic disorder to be of the greatest importance. Marfan⁸² is not inclined to accept the hepatic origin. He comments on the noteworthy familiar character of the disease. Comby⁸³ reporting 34 cases, notes that in 33 there were arthritic antecedents: gout, obesity, asthma or migraine. Enlargement of the liver was found only twice in the series. Apert⁸⁴ considers dentition an occasional cause. He reports a case of typical attack with each eruption of a tooth. Concerning special symptoms, in addition to the characteristic ones, Misch⁸⁵ discusses what might be called a "forme fruste" in which the only symptoms are recurring attacks of malaise, with high fever and acetonuria.

He reports 30 cases of this class. He notes, however, that as a rule there is a recurrent angina in these cases, either catarrhal or exudative. Attention was first called to this recurring coryza in cases of recurrent vomiting, by Rachford. Another symptom, considered by Rachford as extremely common in the later stages of the attack—narcotism—has not been noted elsewhere. According to Guerin⁸⁶ the paroxysm appears in various forms, of which the severest is the convulsive. The nervous element may substitute itself completely for the attacks of vomiting.

It is generally recognized that the accompanying acetoneuria is to be considered as effect rather than cause, indeed this is true of the various acid intoxications which accompany these attacks. (Morse⁸⁷). It is of course well known that acetoneuria occurs in diverse conditions in childhood. Meyer⁸⁸, referring to its common occurrence in the acute infections, notably diphtheria, scarlet and measles, says that it is caused here, as elsewhere, by diminished carbohydrate intake. (Kohlehydrat inanition). It does not appear that the degree of acetoneuria stands in direct relation with the severity of the infection, but its relation to the alimentation, especially to the carbohydrate assimilation would appear established.

SUMMER DIARRHOEA. Dunn⁸⁹ has a very careful study of this subject, clinically and pathologically. (This article was abstracted in the September number of the INTERSTATE MED. JOUR.) Heineman and Michael⁹⁰ made cultures from 102 cases. In 76 cases, no bacilli corresponding to any type of *B. Dysenteriae* were found. In 26 cases (25 per cent.) bacilli were found corresponding to some form of the group, though nowhere of the true *Shiga* variety. The cases showing the bacilli, were cases of ileocolitis not to be clinically differentiated from those in which no bacilli were found. *B. Dysenteriae* was *not* found in all cases with mucous and bloody stools.

CONSTIPATION IN THE NURSING. Saias⁹¹ made a number of autopsies on infants dying of various conditions, to determine the comparative length of the large bowel. He found the descending colon very long, with a considerable number of flexions, in many cases. The transverse and ascending portions were also long, contrary to the statement of Jacobi. The author sees in this condition of the colon, a mechanical cause for the constipation so commonly seen in the nursing and this mechanical cause is not found in the adult.

DISEASES OF THE RESPIRATORY SYSTEM. Pneumonia. Wollstein⁹² has studied the bacteriology of 100 cases of pneumonia in infancy. The pneumococcus was present in 67 cases: 25 primary (76 per cent. of the total number of this group) and 42 secondary (63 per cent. of the total of this group). The percentage of empyema was alike in both classes, primary and secondary. But the pneumococcus cases grouped together, showed a larger percentage of pleurisies, and a

greater tendency to purulent infiltration and abscess formation. The influenza bacillus was *not* found in the cases clinically influenzal.

Discussing lobar pneumonia in infancy and childhood, Koplik⁹³ notes the tendency of certain epidemics to run with marked meningeal involvement, particularly if the pneumonia be apical. Concerning prognosis, he finds that pericarditis is by far the most fatal complication, while otitis, pleurisy and empyema are not so serious. Wilks⁹⁴ sounds a note of warning against indiscriminate chest puncture in children, reporting a fatal case. The subject is also considered in an excellent editorial in the British Journal of Children's Diseases⁹⁵.

Heubner⁹⁶ finds hot mustard packs followed by plain hot packs, far superior to hot mustard baths in the treatment of bronchopneumonia in children.

DISEASES OF THE URO-GENITAL SYSTEM. Acute Pyelitis. Freeman⁹⁷ says that this condition is frequently overlooked on account of the absence of local symptoms. Many of the cases follow intestinal disorders. Jacobi lays special stress on the importance of routine examinations of the urine in very young children with high fever and digestive disorders. The same view is expressed by Baginsky, while Pick⁹⁸ rather inclines to the belief that the gastro intestinal disorders of childhood are more apt to be complicated by a true nephritis of insidious onset, and, often, of chronic course.

NEPHRITIS. In a very suggestive article, Weigert⁹⁹, discusses the dietary treatment of nephritis in childhood. He finds that in chronic nephritis, albuminuria is most markedly increased on a purely meat diet, and diminished most decidedly by a purely vegetable diet. After meat, the greatest degree of albuminuria follows *the giving of a strict milk diet*. The quantity of NaCl in the food, would appear to be of great importance in cases with marked edema. Withdrawal of the NaCl from the food in these cases is followed by a marked reduction of both edema and albuminuria.

Discussing decapsulation of the kidneys, Graham¹⁰⁰ says that the best results have been seen in acute and subacute forms of nephritis. He would urge operation only for such cases, however, as are not doing well under medical treatment. The results in the chronic cases have not been so favorable.

CYCLICAL ALBUMINURIA. Dukes¹⁰¹ says that this condition occurs (1) in neurotics, (2) in children with marked increase of the arterial tension, because of the irritability of the vasomotor centres. It is produced by excess of nitrogenous food, imperfect elimination, and hereditary gouty tendencies. Where the condition is recognized and intelligently treated, there is little danger of nephritis, even though the albuminuria be of long standing.

GONOCOCCUS INFECTION. Holt¹⁰² calls attention to the great fre-

quency of vulvo-vaginitis in children's hospitals. Inasmuch as there is a great tendency to the spreading of the diseases in institutions, prophylactic measures are absolutely necessary. Quarantine, to be effective, must extend to nurses and attendants as well as to children. Twenty-six cases of gonococcic arthritis are reported, 14 of them fatal. Cotton¹⁰³, in reporting an epidemic of vulvovaginitis says that gonorrhoea is a "formidable disease" in children's hospitals. He also urges careful isolation, not only of the patient, but as regards bed linens, utensils, thermometers, etc.

GENERAL DISEASES. "The Exudative Diathesis." Czerny¹⁰⁴ suggests that a congenital anomaly may be responsible for various affections accompanied by exudation such as eczema, seborrhoea, geographical tongue, tonsilitis, retropharyngitis, adenitis, recurring bronchitis and other affections of the mucous membranes. The cases are seen both in breast and artificially fed infants. They form a group, with features in common suggesting a congenital anomaly of the infantile organism, though the course of the individual case is determined by the condition of the nervous system, character of the food, and intercurrent affections. The treatment must consist in careful regulation of the diet, which should be purely vegetable (even eggs being interdicted), the systematic disregard of exaggerated subjective disturbances, and the avoidance if possible of intercurrent affections.

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ORTHOPEDICS.

IN CHARGE OF

NATHANIEL ALLISON, M. D.

In an address on the responsibilities of surgery, delivered at the Portland meeting of the American Medical Association, Richardson¹ made a statement of sufficient interest to be quoted directly. He says:

The tendency at the present time is and should be towards specialization in the treatment of fractures. In cities, and, in fact, in all communities, it would, I am sure, be an advantage if the treatment were placed into the hands of men who have a special aptitude for this branch of surgery. The orthopedic surgeon is by his training accustomed to the making and fitting of apparatus; and the result in fractures depends very largely on the way in which the bones are held by the apparatus in proper position after once they have been put there. At the Massachusetts General Hospital fractures of the jaw have for many years been referred to the dental school, and fractures of the nose to the department for the nose and throat—much to the advantage of the patient. Would it not therefore be wise if fractures in general were regarded as a branch of orthopedics.

And to drive this argument home he adds this foot-note:

Almost as I am writing these words I am asked to defend a physician of whose treatment of a Colles's fracture only two criticisms can be made: One, that the fracture was not reduced under ether; the other, that the arm (in the case of a woman of sixty) was kept in splints too long. Nevertheless, there are permanent deformity, impairment of the wrist motion, and stiff fingers. The physician felt confident that he could treat a little thing like Colles's fracture as well as anybody else, even in a community where the standard of skill was high. In consequence, the patient is dissatisfied, the physician worried, and the surgeon annoyed.

This coming from a surgeon who has always been in the van of progress is of marked significance. For a number of years there has been a tacit recognition on the part of the general practitioner, that it is necessary to have one specially skilled in fracture treatment, either to aid him in, or to relieve him entirely of the responsibility of handling a broken bone. A bad result following fracture is evident both to the patient and to his friends, and is car-

ried about as a constant reminder of a misfortune with which (many times unjustly) is associated some unfortunate practitioner's skill. Due to the present high standard set in the management of fractures, it is necessary to devote much time and care to their treatment, so much so in fact, that it almost constitutes a specialty in itself.

Richardson's statement is based upon the need that is felt by every surgeon who does much abdominal work, the necessity of some one to relieve him of the burden and worry which accompanies the treatment of fractures. The question is, shall there be a specialty limited to the treatment of fractures, or shall these cases be loaded upon the orthopedist? One aim of orthopedic surgery is to correct deformity, and in consequence, the orthopedist is often called upon to correct the deformity which follows mal-union of a broken bone. Aside from correcting deformities already established, orthopedics has long since advanced to the pervention of deformities. The work of Whitman³ on the correction of coxa vara has thrown new light upon the immediate care of fractures of the femoral neck. Recognizing this, Scudder,² in this year's edition of his book says: "The treatment of fractures of the neck of the femur is undergoing a change, which may prove to be a very radical one."

Fortunately in matters such as this, the necessities which arise with the advance of treatment alone can establish the custom to be observed; but there is much truth in Richardson's statement, that the orthopedist who devotes his attention chiefly to the prevention and correction of deformities, seems to be the man best suited to assume the responsibilities of fracture treatment.

RELAXED PELVIC ARTICULATIONS. Goldthwait and Osgood⁴ have definitely defined the pathological and clinical conditions associated with abnormal laxity of the pelvic joints. This group of affections was formerly regarded as being seen only in women during or after pregnancy, and the condition was considered rare. These authors have completely described the condition from the standpoint of anatomy, pathology, and clinical observation; believing at first that parturient women alone suffered from this laxity, observation soon revealed the fact that the symptoms increased at the menstrual period, and later that pregnancy and menstruation, while undoubtedly factors in the production of abnormal pelvic joint mobility, were by no means necessary to its production; that there are other causes, and that the condition exists in men and children.

These discoveries suggested an anatomical consideration of the pelvic articulations which resulted in the conclusion that the pelvic joints are true joints, having all the structures common to joints, and liable to disease and injury as are other joints. Numerous careful anatomical observations were made on the amount of motion normal to these articulations, establishing the fact that motion in the pelvis

must take place in, or be dependent upon the sacro-iliac-synchondroses. Pregnancy, menstruation, injury, disease, and general lack of muscular and ligamentous tone are all factors in the production of this laxity which results in a definite symptom complex.

Clinical observations divide the cases into three groups: Group one includes cases where there is an exaggeration of the normal physiological relaxation of the articulation depending upon pregnancy. Group two includes the cases where there is an exaggeration of a physiological condition (apart from pathological change) associated with menstruation. Group three, where trauma, general weakness, or more definite pathological process is the cause—sex and age have no relation to the frequency of this class.

The etiology, aside from the abnormal physiological processes, depends on trauma, such as "sitting down hard" or "giving way" under severe strain in lifting. The trouble is more frequent in fat people, where the drag of the large abdomen causes lordosis and increased pelvic joint strain. People who have naturally a lack of physical tone are also predisposed to this trouble. The subjective symptoms have a wide range as to severity. In cases where the degree of laxity is great there may be extreme disability and constant suffering. Other cases complain only of backache referred to the sacral region, or to one synchondrosis or the other. At times there is a sensation of giving way when a sudden jar or misstep takes the muscles off guard. Objectively, the motion which bring strain on the weakened articulation are guarded, especially in stooping or lying down. If one side alone is affected the patient stands with peculiar lateral deviation of the body. Forward or lateral bending of the spine is guarded. There is spasm of the hamstring muscles making it painful, and in severe cases impossible, to flex the thigh with the leg extended. Subluxation is at times revealed by palpation.

The treatment consists of protection to the joint and replacement of subluxation when discovered. The form the protection takes should be suited to the individual case, extreme cases requiring recumbency in plaster of Paris or a leather jacket. Milder cases require the support offered by several different forms of apparatus, the thing essential being the protection of the strained articulation, at night as well as during the waking hours. The authors describe several forms of brace. The importance of such a complete treatise as this cannot be over-estimated. It throws light upon many heretofore obscure complaints which have entailed much misery. It is of particular interest in its relationship to gynecology and obstetrics.

SCOLIOSIS. An attack has been made on this condition from a new position. Lovett,⁵ realizing the advantages to be gained from a new viewpoint, has made an exhaustive study of the mechanics of the normal spine, and has shown their relationship to scoliosis. Hereto-

fore scoliosis has been approached only from a pathological standpoint, as if "one undertook to investigate a railway accident solely by the study of the wrecked cars"; the results of the destructive forces could be made out, but more could be established by learning the proper relation of the trains to each other, and the signal system and precautions necessary to prevent accidents. His object therefore was to give a clear, concise description of the normal spinal movements, and then to discover their relationship to scoliosis.

A symmetrical living model, a young adult male and female cadavers and some two hundred cases of lateral curvature furnished the material. This has been admirably handled, and the normal mobility of the spine, as well as its separate movements, established and analysed. A summary of this work is as follows:

(1)—In the lumbar region flexion diminishes mobility in the direction of side-bending and rotation; and extreme flexion seems to lock the lumbar spine against these movements. (2)—In the dorsal region hyperextension diminishes mobility in the direction of side-bending and rotation. Extreme hyperextension seems to lock the dorsal spine against these movements. (3)—In flexion of the whole spine, side-bending is accompanied by rotation of the vertebral bodies to the convexity of the lateral curve, the characteristic of the dorsal region. (4)—In an erect position and in hyperextension of the whole spine, side-bending is accompanied by rotation of the vertebral bodies to the concavity of the lateral curve, the characteristic of lumbar region. (5)—The dorsal region rotates more easily than it bends to the side. Whereas, the lumbar region bends to the side more easily than it rotates. (6)—Rotation in the dorsal region is accompanied by a lateral curve, the convexity of which is opposite to the side to which the bodies of the vertebrae rotate. (7)—The column of vertebral bodies obeys in flexion, hyperextension, side-bending and rotation, and in the combinations of them, the same rules which govern the intact spine. A fact of much significance in connection with the rotation theories of v. Meyer and Albert.

In applying this knowledge to lateral curvature the author concludes that there are two distinct conditions of this affection, one to be regarded as functional, and not accompanied by extensive pathological changes, the other represented by the cases which are accompanied by pathological changes in the vertebrae; and that between these two cases transitional cases exist. The point of this classification lies in the fact that the postural cases may be accounted for by the motion which physiologically exists in the normal spine, and that the normal mechanism will not account for bony rotation on the convex side of lateral curvature, which is due to superadded pathological change.

Schanz⁶ has thoroughly re-covered all the ground from a pathological standpoint. Concluding that true scoliosis presents in all cases a characteristic symptom complex, and that all cases of torsion of the spine are not true scoliosis.

Schultess,⁷ Riedinger,⁸ Reiner,⁹ and Spitzzy¹⁰ have written complete articles from a clinical standpoint, all of which set forth in concise form that which is generally known and accepted.

CONGENITAL DISLOCATION OF THE HIP. The large measure of success following the manipulative reduction of this dislocation, as shown by the ultimate reports that have appeared during the year 1905, seems to promise for the future the approximate elimination of that class of cases now referred to as irreducible. Clark,¹¹ in England, has written a most optimistic paper and has reported a number of anatomical repositions. He does not regard the operation as either dangerous or difficult. Tubby¹² has also put himself on record as believing that the progress shown by the results of the manipulative operations is encouraging to a high degree. Froehlich,¹³ in France, has reported a high percentage of success, i. e., in double cases 20 per cent. perfect, and 69 per cent. very satisfactory results. In single cases 20 per cent. perfect, and 66 per cent. very satisfactory results. In America reports which correspond to these have been forth-coming. It may be assumed that generally these cases are now subjected to rational treatment, and that each succeeding year will show an increased account of success.

For a certain class of cases that relapse after repeated attempts at manipulative replacement, Bradford¹³ has recommended an operation which will fill this gap in the therapeutics of congenital hip. Realizing the faults of the older cutting operation which involved curetting of the rudimentary acetabulum, thereby wasting valuable tissue and exposing the joint to the danger of bony ankylosis, he conceived the idea of utilizing the fibrous tissue found in the acetabulum to retain the reduced head. He advises an incision which will expose the joint without the division of muscles. Through this opening the capsule is freely divided and the socket exposed. All capsular bands which prevent or restrict a perfect reduction are carefully divided, deep silk sutures are places in the capsular tissue at the lower margin of the acetabulum, the other portions of the split capsule are stitched about the head and neck, so as to aid in its retention. This operation requires nice attention to details, but is accompanied by little or no shock. He reports three cases where this was done, and in each there is now a firmly reduced joint with adequate motion.

Bartow has devised a valuable aid to the after treatment in the shape of a modified plaster of Paris spica. This bandage, reinforced by a long flat piece of steel, forked at the ends, makes a bridge running from a pelvic band to a thigh band, the latter covering only the lower

third of the thigh; this leaves the adductor surface, the perineum and buttock free to be cleansed, and also makes examination of the joint while in plaster of Paris, a matter of less difficulty.

Much has appeared to increase anatomical knowledge of this condition. Kermisson¹⁴ has reported the anatomy of a foetus with unilateral dislocation. On the affected side the acetabulum is small and undeveloped. The femur is smaller than its fellow and has changed shape. The joint capsule is notably elongated and the ligamentum teres is long. He concludes that the malformation is of early origin, and involves all the structures that go to make up the hip articulation. Poticki¹⁵ has made a similar report. The foetus also presenting unilateral dislocation. He shows by careful measurements that the whole dislocated extremity shows change. He compares this deformity to other congenital deformities, and concludes that it must be due to the same causes, which are probably trophic. Gocht¹⁷ has reported the anatomy of two cases that died after treatment. He dwells upon the importance played in the reduction, and in its retention by the capsule and its accessory bands.

FOOT ERROR. H. L. Taylor¹⁸, in an article on the practical importance of correct foot postures, both in standing and walking, has demonstrated several points of general importance, as well as of special importance to military men and gymnasium teachers. "Toeing out" throws the weight on the heels, increases pronation, diminishes stability and control, consequently weakens the foot and causes a weak, awkward gait, bad general posture and fatigue. "Toeing straight" protects the foot, favors efficiency and gives correct general posture. "Toeing in" protects the arch, the inner side of the foot and the inner side of the knee. All prolonged standing is harmful, least so when the base is frequently shifted from one foot to the other. In standing the feet should not be turned out.

Hoffmann¹⁹ taking advantage of the attendance of several varieties of primitive people at the Louisiana Purchase Exposition, has made a careful study of one hundred and eighty-six pairs of non-shoewearing feet. He met with many difficulties in obtaining his material, but after months of most painstaking effort he has produced a complete piece of work. He found that there is no relationship between the height of the arch and the character of the gait, and that the height and shape of the longitudinal arch has no bearing on the strength and usefulness of the foot. Variations in the shape of the foot and the character of the gait are as great among the feet never imprisoned in a shoe, as they are in the habitual shoewearing foot. A study of all foot-wear has led him to conclude that anything that is practical in the shape of a shoe has a decided tendency towards the production of hallux valgus and foot compression deformities. Some of the bare feet when put in shoes showed in a short time in-

evitable results of shoewearing. The acquisition of shoe deformity like other acquired traits is not transmitted. The child of shoe-wearing parents has just as normal a foot at birth as the child of the most primitive savage. This article is also replete with valuable suggestions to military authorities.

Muscatello²⁰ has reported a case where total collapse of the arches in both feet followed the inflammatory edema of gonorrhoeal rheumatism located about the tarsus. This deformity was of gradual onset and progressed to complete arch obliteration and eversion of the feet. The patient was treated by manipulation and correction under an anesthetic with satisfactory results.

Wilson and Patterson²¹ have described a new operative procedure for flat foot which they claim yields better functional results than any of its predecessors. The operation is a combination of arthrodesis and tendon transplantation. The arthrodesis is done on the astragalo-scaphoid articulation, enough bone being removed to allow a complete restoration of the longitudinal arch. The tendon transplantation consists of putting the divided tendon of the extensor proprius pollicis through a hole drilled in the scaphoid bone, and suturing it to the periosteum on the plantar surface. To gain success the foot must be flexible and the transplanted tendon subjected to the proper tension.

Painter²² has described three varieties of flat foot that heretofore have been treated by manipulation as one class. The first class of cases has sensitiveness which causes reflex spasmodic contraction at the medio-tarsal joint, the foot resisting passive inversion. If adhesions exist in the articulation these cases must be anesthetized and corrected by manipulation. The second class is made up of cases that have abduction and pronation, which are due to marked spasm of the peroneal muscles. Under anesthesia this spasm disappears, only to return when the corrective bandage is removed. Here he advises resection of from $\frac{3}{4}$ inch to 1 inch of the peroneal tendons and destruction of their sheaths. Correction is then permanent. The third class is constituted by the cases that present bony deformity. Removal of the scaphoid will alone allow the restitution of an arch and functional improvement. The writer states that many manipulative flat feet operations have failed due to the non-recognition of these distinctions. He reports thirty successful cases of peroneal tendon resection and twelve excisions of the scaphoid.

BONE TRANSFERENCE. Huntington²³ has transferred a portion of the fibula to fill a gap caused in the tibia by osteomyelitis. The patient was an otherwise healthy. The fibula was first divided and the upper end of the distal fragment was approximated to the lower end of the upper tibial fragment. Union was slow here, as was functional improvement. Later the fibula was again divided and

the end approximated to the upper end of the lower tibial fragment. Union followed with good return of function.

TENDON AND MUSCLE TRANSFERENCE. The period of criticism doubt that has come upon these operations Bradford²⁴ says is only one of the phases of the cycle through which new surgical procedures must pass before they become definitely established. Disregard of the mechanical principles involved in this work he believes to be the cause of so many unsuccessful results. No one can doubt the efficacy of this kind of surgery, but one must not enthusiastically rush into tendon or muscle grafting with the idea that the only thing necessary is to switch a tendon into another tendon to obtain a perfect result. The cases must necessarily be carefully worked out, and more carefully executed, in order to get improvement. He reports six cases of positive success after from one and one-half to five years. In one of these cases a portion of the trapezius was inserted into a paralyzed deltoid, with good function resulting. In another this was supplemented by placing the pectoralis minor in the biceps with return of arm function.

SPINAL CRIES. Brackett and Crandon²⁶ have made a careful study of the various methods of applying the plaster jacket to Pott's disease; they conclude that the jacket is best applied to lumbar diseases on a hammock, face down; that in dorso-lumbar disease there is increase of deformity if the compensatory lumbar curve is increased; that the jacket should be carried high in front for high dorsal disease, and postural defects avoided; that the dorsal position is best adapted to the application of the jacket to dorsal disease. In old cases with deformity, care should be taken to avoid lordosis. The poise, while standing, is a valuable guide to follow in judging the efficacy of an applied jacket. A jacket weighing 1 lb., 12—14 oz. should be sufficient for a child aged from three to five years, and one weighing 2 lbs., 10 oz. for a child aged ten to twelve years. Thorndike²⁵ has devised a method of measuring and recording the spinal curve without removing the jacket. This is done through two vertical oblong windows cut over spinous processes and the use through them of the Young spine tracer. The partial curve thus obtained is then completed on paper and calculated in degrees.

ARTHRITIS DEFORMANS. Following the lead of Schuller²⁷ and Bannantyne²⁸, Fayerweather²⁹ has found in three cases of chronic joint disease a short bacillus with rounded ends. He has carefully considered the ever present chances for error in this kind of work and reduced them to a minimum. This bacillus, found in pure culture, was cultivated on artificial media and characteristic lesions in the joints of lower animals on inoculation. From a case of acute rheumatism he isolated a similar organism. He believes there is no definite evi-

dence to indicate any essential difference between acute articular rheumatism and the infectious polyarthritis chronica villosa of Schuller; that clinically, these two types should not be sharply separated. From such a limited number of cases he does not feel able to draw any absolute conclusions, but he points out the advantages to be gained by bacteriological study, especially of the blood, of these cases. H. W. Jons³⁰, in a study of thirty cases of non-tuberculous joint disease, states that trauma, exposure to cold, etc., had apparently no influence on the production of the disease. He also points to the moderate success possible of achievement in the treatment of these cases.

F. L. Richardson³¹ has divided seventy-five cases of arthritis people in whom the disease is periodic, the joints being tender and swollen to a fusiform shape. The diagnosis of the first attack is usually acute articular rheumatism, but the temperature seldom goes over 102° and the acute symptoms disappear leaving the joint always more or less damaged. Recurrence takes place in from a few weeks to two years. This class of cases may follow some definite infection.

In the other class the cases present crippled joints which show marked deformity of the articular surfaces and often new formation of bone. These cases are usually "physiologically old" and present calcification of the arteries. In part, there seems to be, as Bradford has said, an analogy between this condition and arterio-sclerosis, the factors which produce the one may well produce the other. But why in one class of cases there is new formation of bone and in another class bone absorption is as much unknown at present as are the various conditions which give rise to these diseases

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REVIEW OF NEUROLOGY AND PSYCHIATRY.

IN CHARGE OF

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The scheme of division followed in the review of last year will in the main be used in this year's review. In addition to the sources drawn upon for papers indicating progress an effort will be made to give some idea of the general trend of neurological thought as seen in the subjects touched upon at the annual meetings of the representative special societies in France, Germany, England and America.

The following divisions will be maintained in the paper. 1. Papers dealing with case reports, collection of cases, statistical studies and other clinical data. 2. Studies relating to the Physiology, Anatomy, Chemistry and Pathology of the Central Nervous System. 3. Newer methods of therapy and new methods of clinical and laboratory diagnosis. 4. Brief consideration of notable text books and larger monographs.

In clinical neurology it is possible to observe two different tendencies, one seems to be directed to the accumulation of a mass of clinical data derived from the study of many cases of the same disease and the other seems to be directed to the study of rare types of disease of which only a few instances are to be found in the literature. In one case there is an inclination to narrow the conception of diverse classified disease types, in the other there is the same inclination to broaden it.

However diverse the currents in neurology may be thought to be there seems for Psychiatry to be only one very marked tendency and that seems to be directed still to the question of the place which certain general varieties of psychoses should occupy in the scheme of classification. This tendency is best illustrated by the great activity in the dementia praecox question and in the rehabilitation of the question in regard to the justification of hypochondriasis to be considered as a clinical entity. These activities are reflected in the literature of a year and the papers that will be mentioned in the first part of this review serve as illustrations of them.

The question of arterio-sclerosis as a clinical picture no less than its special pathological aspect has aroused the interest of a number of investigators. An interesting commentary on this apparent sudden interest in a subject long since allowed to rest lies in the fact that the special application of the facts discovered in the laboratory follows long after the facts themselves have become common property.

This lagging behind has been the cause of endless confusion on account chiefly of the newer data always in process of being gathered. For the past five years or more pathologists have been going over the question anew and with the better technique at their disposal and the more general realization of the part played by the plasma cells and other finer structures of the blood vessels have determined facts which are now coming to have some clinical importance. Therefore the work of Barret¹ deserves mention, who in a number of publications has attempted to show that arterio-sclerotic disease of the vessels causes clinical pictures of varying aspects, which can be brought into some sort of relation with the anatomical findings.

The significance of the plasma cell infiltration in the pathology of dementia paralytica has now so sharply separated it from the other conditions of dementia that the problem has become easier as its limits tend to become narrower. In Barret's work the tendency has been to conform to the sharp distinctions made by Alzheimer and Binswanger. Bucholz² in a study of five cases of insanity on the basis of arterio-sclerosis finds that the clinical picture varies greatly and further that the severity of the clinical symptoms bears no necessary relation to the severity of the anatomical changes. The lesions were not uniform either in localization or character. Fisher and Harlow Brooks³ consider the subject more from the general medical point of view, attempting to bring its manifestations in respect to the nervous system in close relation to the general clinical picture. They lay rather more stress on the consideration of the finer anatomy of the blood vessel itself. They mention diseased conditions of the spinal cord, in the way of diffuse inflammation, combined disease of various tracts, etc. An interesting observation in this more general way of looking at the subject is found in a paper by Gibson⁴ who describes a very striking sensory objective finding in the arm and back of a patient suffering from angina pectoris. During the typical attacks a marked hyperesthesia was found in that region. The real importance of this case consists in the opportunity it affords of giving a clear description of certain facts concerning the afferent impulses from the heart. In the explanation advanced use is made of Head's ingenious theory to interpret the fact that pain is localized, not in the organ affected in all cases, but in the skin. The reason is that the sensory and localizing power of the surface of the body is enormously in excess of that of the viscera, and by what may be termed a psychical error of judgment, the diffusion area is accepted by consciousness and the pain is referred to the surface of the body. This paper is an aid to the understanding of one of the clinical features of angina pectoris.

A very remarkable awakening on the subject of brain tumors might be regarded as a striking incident in the year just passed.

There is a tendency to take stock, as it were, every little while, on subjects under discussion and the important place given to this subject in the discussion at the Philadelphia meeting of the American Neurological Association might be regarded as an evidence of this. The papers by Mills, Frazier and Keen are especially notable, for the reason that they represent more significantly than ever before the great advantage of the physiologically trained surgeon and the neurologist working together towards the solution of a common problem. A monograph containing papers by the first two and by De Schweinitz, Weisenberg and Lodholz⁵ entitled Tumors of the Cerebellum contain a great mass of data on this subject. The most interesting deal with the cerebellar-pontine angle group of tumors, the so-called fibro-neuromata. Especial mention should be made of De Schweinitz's⁶ paper on the ocular symptoms of cerebellar tumor. What he has to say on the subject of visual acuity is well worth quoting: "It is well known that optic neuritis caused by intracranial growths is perfectly compatible with good visual acuity but if the growth is situated in the cerebellum there is apt to be early great disturbance of vision rapidly proceeding to blindness." The tone of the papers as well as the discussion at the meeting of the American Neurological Society showed a growing confidence in the results of operative interference both as a curative and as a palliative measure. Starr's statement of a short time ago found in his text book, that cerebellar tumors offered no opportunity for successful surgical interference would no longer be accounted true in the face of the progress to be noted in the work already done. Early diagnosis, the collection of accurately observed clinical data, and the avoidance of delay in operating were the key notes of the whole discussion. From the surgical point of view it was interesting to learn that the surgeon was sharply criticised by the neurologist for his failure to make the same advances in operative technique in the operations on the head that had been accomplished in the same time for abdominal operations. Leaving aside a few unimportant details the same techniques used now on the operations for tumor of the brain that was used ten years or more ago whereas in the other operations of surgery the methods of today are radically different from those of a decade ago. To this apparent lack of interest on the part of the surgeon has been attributed the very slow decrease in the mortality of such operations. In the last year or two this criticism is no longer tenable especially of the Philadelphia neurological surgeons and likewise of Cushing of Baltimore. Perhaps this points to the development of specialists in the surgery of the nervous system. The necessity of surgeons trained along neurological lines or at any rate with an interest in the neurological problem they are trying to solve and remedy is apparent. Collier's⁷ paper on the false localizing signs in cerebral tumor is

a very helpful contribution to the subject especially as it is based upon 161 cases examined in the laboratory of the National Hospital. Most of the cases came under the author's own personal observation as an illustration of the points brought out in this paper a case may be mentioned presenting symptoms pointing to posterior fossa growth. It was found on autopsy that the tumor was a prefrontal one. In explanation it appeared that the left lateral lobe of the cerebellum was pushed into the foramen magnum by the pressure of the tumor. Consideration of such pseudo-localizing signs is of importance in weighing evidence in respect to data of definite as against those of indefinite localizing seizures. Dana⁸ describes what he terms cerebellar fits consisting of dizziness and the roaring in the head with inability to stand but without loss of consciousness. These fits last from five to thirty minutes, later there was loss of consciousness, stiffening irregular tonic movements of the limbs. These are cerebellar or cerebellar-pontine seizures. T. Garinger Stuart and Gordon Holmes⁹ have written what must probably be considered the most valuable contribution to the subject of cerebellar tumors of the year. A material of forty cases studied in the brief time of two and a half years immediately arouses the keenest attention, not alone on account of the large number of cases but because they have been observed so recently that all the latest work was utilized. In twenty two of these cases the diagnosis was confirmed by autopsy or operation. An opportunity was also given to observe thirteen cases in which the disease was removed by operation which involved large destructive lesions. The positive and negative symptoms of cerebellar disease in relation to the results of experimental research on animals could also be observed. On the subject of cerebellar fits these authors are by no means as positive as Dana though they do not deny the existence of Dana's or Hughlings Jackson's type of fit. Some seizures affecting the trunk and limbs were observed. Ataxia, atonia and paresis in this order appear to be the essential symptoms of cerebellar disease in man. A complete clinical description of twenty two cases in which the diagnosis was confirmed by autopsy or operation is appended to the article increasing very much its value as a clinical document. A note of a paper by Paton¹⁰ on the results upon optic neuritis after operation should be made here. This gives us some of the much desired data in respect to the fate of such cases after operative interference. The need of such information was commented upon in the review of last year. The paper of Walton and Paul¹¹ should be mentioned if only to call attention to two practical points: When the tumor is not found at the point trephined it is wiser to explore over the surface of the brain than to puncture the brain substance in various directions. Whereas the clinical diagnosis of *gumma* is frequently made this diagnosis is rare in recent post mortem reports.

The clinical diagnosis of gumma should therefore not deter from operations. It is important to follow a fixed plan of operation in spite of previous failures. The second dictum is of the greatest importance and represents a view already emphasized by Cushing in respect to tumors of the spinal cord. Oppenheim's^{1,2} paper is of permanent value on account of the great care used in the study of the cases reported and the unusually detailed methods of clinical examination. Eleven cases of brain tumor all with fatal outcome form the subject matter of the paper and in every one the pre and post operative history together with the postmortem reports are given. There is a wealth of information contained in the paper as well as the keenest sort of differential diagnostic acumen displayed. In no paper that has recently appeared is the neurological method of a master so impressively shown. Of the many significant points which Oppenheim brings out might be mentioned the value of a reflexion of the cornea. It is never found in hydrocephalus but in tumor. Mention is naturally made of the work of Nonne on Pseudo-tumor Cerebri, a note of which appeared in the review of last year. This is a peculiar symptom-complex simulating exactly the clinical picture of tumor cerebri which either disappears spontaneously or as the assumed result of operation in which no tumor is found. Oppenheim has no solution to this clinical puzzle but suggests that on account of its rarity, the clinical data that are already known about cerebral tumors should not be invalidated by it. He himself has had no case which he felt compelled to interpret as belonging to Nonne's category. In closing his paper he refers to a case of cerebellar tumor of his own which was successfully operated upon and likewise mentions the remarkable series of successful cases which Horsley has published. In view of this he sees no necessity for any pessimism in regard to the operation on cerebellar tumor cases. It is an interesting commentary on the similarity of neurological thought among different nations to note that this was practically the prevailing thought in the discussion which took place at the meeting of the American Neurological Society.

Considerable attention has been given this year to the investigation of the various problems which still cluster about the different phases of Anterior Poliomyelitis. The pathology of this disease in adults as well as children has received some valuable additions which will be referred to in another part of this review. That adults form a more favorable field for the study of this disease than children is apparent and if the type is the same or nearly the same in the one as in the other there is hope that with the accumulation of a sufficient number of facts concerning it the clinical aspect of the disease may come to be understood. It is manifest that at the present time there is little agreement as to the means which will enable us to recognize

anterior poliomyelitis at a time when the acute symptoms are passed, changes in the central nervous system producing these symptoms. Van Gehuchten¹³ reports a case with autopsy. The symptoms were a paraplegia of all four extremities, trunk muscles and muscles of the neck. A curious feature was the presence of intense pain in the muscles upon the slightest pressure. The confusion that this might cause for example in a case of suspected alcoholic neuritis is apparent. At the autopsy the most interesting thing found was the participation of the veins in the process. The arteries of the anterior medial fissure were normal until they entered the grey matter. The capillaries of the grey matter are believed to be the principal seat of the initial lesion in both children and adults. It is thus regarded as vascular in type and due to an infection the nature of which is not known. An interesting clinical example of the atypical course of this disease is found in an account of J. Bruening¹⁴ of father and son both attacked by the same disease, apparently based upon a non-inflammatory degeneration of the anterior horns. The interest in cases of this nature lies in the warranted assumption that anterior poliomyelitis can not be looked upon exclusively as an acute infectious process but in some of its aspects it lies well within the limits of the more generally distributed progressive muscular atrophies. An explanation more particularly concerned with the above case, may be found in the idea that there was present both in father and son some degree of hereditary weakness in the cells of the anterior horn. That the whole subject is in need of careful revision can be seen from the case reported before the Societie de Neurologie of Paris by Roussy and Gauckler¹ in which the atrophy was of the typical radicular type of the scapular humeral variety. Baumann's¹⁶ paper is of value because it is based upon a material of 85 cases observed during fifteen years. He has collected some interesting data in respect to the muscles first attacked and also during the months of the year in which the disease is most prevalent though this latter has been done before. Two papers have appeared on the subject of the role of the abdominal muscles in the distribution of the paralysis. Cornell¹⁷ and Ibrahim and Hermann¹⁸. Both papers are careful clinical reports. Their value is due chiefly to the fact that there has been little mention in the literature of the abdominal muscles being affected, though Oppenheim in the last edition of his text book notes the possibility of its occurrence. Clopatt¹⁹ mentions the fact that there may be involvement of the pupil in the disease and describes a case in which there was a difference in size of the pupil with ptosis on the paralyzed side. This is a rare occurrence and points to the involvement of the cerebro-spinal center of Budge. Probably now that attention has been called to this phe-

nomenon it will be more frequently found. Considerable space has been given to this disease in this review because there has been evidence that a great deal of careful study has been given to it and a considerable number of new facts have been brought out.

There has been no paper on multiple sclerosis of the importance of some of those noted in the review of last year but the increasing interest in the careful study of this disease can be gauged by the large number of papers that have appeared. The whole tendency seems to be toward the recognition of the earlier manifestations and the recognition of the aberrant types. Armend-DeLille²⁰ reports a case in a child 5½ years old. Raymond and Beauloin²¹ one in a young girl 13 years old. The difficulty in diagnosing these early cases is manifest, especially in differentiating them from the various family diseases notably from Marie's cerebellar ataxia and other cerebellar syndromes met with in early childhood. Muller²² whose monograph on multiple sclerosis is easily the most advanced recent work on the subject in an address before the South Western Neurologist at Baden-Baden on the "Little known forms of multiple Sclerosis" shows how far advanced our knowledge in a clinical sense has become. This paper can be considered to represent the present status of multiple sclerosis. He calls attention to its frequency, the importance of early and atypical cases and especially of the value of the eye symptoms and the comparative rarity of the so-called classical types. The characteristic eye condition usually the atrophic pallor of the temporal half of the disc is the most certain and the most important symptom. Early cases can be definitely diagnosed if there are present, the eye symptoms absence of the abdominal reflexes, the Babinsky phenomenon and a slight uncertainty of the arms in finely intended movements. He calls attention again to the comparative frequency of slight sensory symptoms especially of hypalgesia and notes the cases that begin with pain neuralgic in character particularly in the trigeminal region. It is essential that the aid of a skillful ophthalmologist be invoked in the class of cases he refers to. G. Scherb²³ describes a case in which the Babinsky cerebellar asynergia was pronounced and notes the importance of carefully studying the symptoms pointing to an involvement of the cerebellum. This subject has come to be recognized as a fixed characteristic of what may be considered slight involvement of the cerebellum. Bramwell²⁴ discusses the prognosis by an analysis of 110 cases which he has studied. This is probably the first attempt of this kind to be found in the literature. In 196 fatal and nonfatal cases the average duration of the disease is found to be ten years and five months. Thirty-five of the 110 cases died, 33 are worse, and 16 about the same, improved 8 and 10 are apparently well. In one case the patient has had the disease thirty-three years. He also gives an

account of four cases in which a cure has to all intents and purposes taken place. Work of this kind brings the whole subject much nearer to the everyday working experience of the neurologist.

An interesting variation from the tabes literature of this year has been the decline of the discussion of the syphilis tabes question. The few papers that have appeared consider the question from novel points of view and are not any longer mere statistical studies depending upon the weight of numbers alone. It is apparent that the work of Erb Lesser and others noticed in the review of last year has for the present at least determined the question. Nevertheless²⁵ Mendel's paper deserves mention. He gives notes of three cases which bear directly upon the question at issue. A ten year old boy with typical tabetic symptoms whose mother infected by the father has had progressive paralysis for two years. The father himself likewise has tabes. A case of juvenile paralysis with a striking syphilitic heredity and a case of late infection in a man 52 years old who at age of 67 showed evidence of tabes. Hudovering and Guszmann²⁶ have approached the question in a novel and a highly suggestive way. They examined from a dermatological clinic fifty cases of tertiary syphilis all of whom had received their infection at least three years before. They found the astonishing result that in only 44 per cent. was the nervous system intact, in 46 per cent. tabes and progressive paralysis were certain and in 54 per cent. probable. Two phases of tabes seem to have interested investigators this year, one is concerned with the study of new clinical facts and the other is the consideration of the infantile tabes question. Among the papers belonging to the first category the following are worthy of mention. Marie and Leri²⁷ describe a case of tabes with atrophy of the muscles supplied by the motor branch of the fifth. In his case there was ophthalmoplegia and blindness, all of which pointed to a basal meningitis which explains for the author the ocular symptoms. There is in this evidence somewhat confirmatory of the meningitic theory of the initial lesion of tabes long ago advanced by Nageotte and others. Gowers²⁸ believes that the pains in tabes are due to morbid changes in the extremities of the peripheral nerves, a view which is in line with Leyden's theory of the peripheral nerve origin of the tabetic process. It is curious that the theories of the tabetic origin should now and then be given a clinical expression. Cotala²⁹ attacks the statement made by Rosenbach and others that the abdominal reflex especially in the early stages of tabes is increased. He analyzes a material of thirty-eight cases in respect to the age of the tabes and finds that the relation is not constant. Rather the contrary is found the older the tabes the more likely is the abdominal reflex to be increased if it is present at all. Donath³⁰ touches the question of the return of the knee jerk in tabes without the presence of a hemiplegia. This was formerly thought to be the only means by

which it could be accomplished. He interprets his case as depending upon a regeneration of the fibres in the reflex arc. The subject of infantile tabes has received much additional data from this year's tabetic literature. This question is of importance for two reasons, first because it necessarily throws some light upon the syphilitic tabes question and second because it is possible to study tabes and dementia paralytica in uncomplicated conditions. The most important paper on this whole question is undoubtedly that by Herz and Lemaire³¹ who carefully analyze all the hitherto published cases in which the diagnosis cannot be questioned. Forty-six cases are tabulated in this way. The etiological factor is without doubt syphilis. The most common mode of onset is bladder symptoms, whereas lightning pains the most common symptoms of the adult form are seldom met with. Blindness is a very frequent initial symptom. The comparative rarity of infantile tabes in proportion to the frequency of infantile syphilis is a striking fact and the authors presuppose hereditary weakness of the central nervous system which together with the syphilis determine in a given case the occurrence of infantile tabes. A very good bibliography adds much to the value of this paper. The final word on the question of the existence of this form of tabes has been said this year in a paper by Koster³¹ in which the first case depending upon an inherited syphilis has been carefully studied post mortem. The patient, a thirteen year old girl, showed all the usual symptoms of tabes and progressive paralysis and the autopsy showed without any question that the typical degeneration of the posterior columns were present. This paper in addition brings the infantile tabes question up to date and contains also a description of other cases studied by the author. Grinker³² reports a case in a family of neurosyphilitics. Closely allied with the question of infantile tabes is that of infantile general paralysis, the existence of which has not been in doubt. As typifying our knowledge of this subject the paper by Vogt and Frank³³ might be mentioned. They bring out these points which differ from the adult form; gradual development, accentuation of the motor symptoms and the rarity and lesser intensity of the grandiose ideas. The subject of the cerebellar syndrome and its relation to more or less recognized types of disease has excited the interest of neurologists for a long time. The subject is as yet somewhat confused especially from the point of view of classification. Two papers on this subject are of interest. Fredereich's ataxia and its relation to or community with the hereditary cerebellar ataxia or the less well known cerebellar atrophy form the subject matter of these papers. Raymond³⁴ has formulated all the various transitional forms and the two main types into a syndrome depending for its common characteristic upon an affection of the cerebellar system either in the centers themselves or in the different systems. There would then be a spinal type.

Freidreich's cerebeller type Marie, a bulbo type, bullbotuberantial type with auditory symptoms and a generalized type with either or many of these variations. Nonne's³⁵ paper is comprehensive and contains in addition the anatomical findings in a case previously described by him. The value of this paper consists in the fact that it presents in a chronological order the development of the whole subject and the evolution of the idea that Raymond so aptly lays down in his paper just quoted. Amaurotic family idiocy has received additional data from the papers of Spiller³⁶, McKee,³⁷ Buchanan and Shumway. In this series of papers the most interesting point brought out is found in the study of the retina microscopically. The retina showed the typical macular oval patch which has come to be regarded as pathognomonic of this disease. Spiller in the pathological study found very much the same condition of the cells that have been described by Sachs, Hirsch and others, that is a more or less wide-spread involvement of all the nerve cells. Schaffer's⁴⁰ paper is an unusually valuable contribution partly because it deals with pathological study of six cases and also for the reason that he used on the study of the nerve cells Bielschowsky's fibrilla stain. His conclusion that the changes in the cell represent a primary disease and that the whole process may be looked upon as an exquisite example of Edinger's *Aufbrauchkrankheit* that is a disease whose foundation is based upon a performed weakness of structure produced by overuse is of great interest because the contrary opinion as expressed by Sachs, Spiller and others, is that the cell changes are secondary. The importance of the eye muscles in the symptoms of myasthenia have been insisted upon by the writers whose papers on this very interesting disease deserve mention. Spiller Buckman⁴¹ and Frank⁴² give accounts of such cases. Burr¹² reports one case with autopsy. It can be said that our knowledge of this disease has not been very materially increased by the work of the year although a considerable number of papers has been published. A paper deserving mention and praise is that by Fraenkel-Hochwart⁴⁴ on the Meniere's symptom complex. This paper forms a complete epitome of our knowledge, based upon a careful study of 208 cases personally observed. In almost all of these cases there has been a careful otological examination. Especially valuable is the differential diagnosis, in which brain tumor, tabes, dementia paralytica, arterio-sclerotic conditions of the brain and cord are considered. Its relation to the various neuroses especially to hysteria is likewise touched upon. A valuable addition to the data we possess in a clinical way is found in the description of cases of isolated cerebral polyneuritis with the Meniere symptom complex. Altogether this paper may be looked upon as a type of work in clinical neurology in which the use of large material is productive of a systematization of clinical facts of great value. Berger⁴⁵ describes as a clinical entity a case of what he calls polyneuri-

tis cerebialis Menierformis, a condition in which the cranial nerves are affected either with paresis or sensory changes together with the development of the Meniere symptom complex. It is generally one-sided. The recognition of this form will be of assistance in interpreting some of the confusing clinical pictures met with in this region, in which the ear symptoms alone can not explain the picture presented. The interest which the recent epidemic of meningitis has aroused has resulted in a great many papers which however have not added materially to our knowledge of the disease in either a clinical or in a pathological aspect. The so-called posterior basic meningitis of children has thrown however a certain amount of light upon the pathogenesis of hydrocephalus. Hildesheim⁴⁶, in a very instructive paper based upon a study of 128 cases attempts to prove the importance of this form of meningitis in the aetiology of the subsequent development of hydrocephalus which was formerly considered to be idiopathic. His paper is not only interesting from the standpoint of his conclusion but likewise because he presents a careful clinical study of the disease. It was noted in the review of last year that the study of the eye symptoms in relation to the clinical picture of which these symptoms are a part deserves to arouse renewed attention. This is not meant in the sense of a study of minor grades of refractive error as a wholesale aetiological factor in all sorts of nervous diseases but in the sense of seeking to discover the real meaning of eye symptoms as they occur in connection with well recognized types of diseases. Spiller's⁴⁷ presidential address at the opening of the American Neurological Association is a good example of this kind of work. The relation of paralysis of associated movements of the eye to definite cerebral lesions proved in some cases by autopsy forms the subject of his paper. This paper is an authoritative exposition of the subject as far as our knowledge goes. Mention should be made of the further progress in the study of the new disease called by Oppenheim myatonia congenita. This is a general or localized hypotonia of the muscles occurring in infants. Spiller's⁴⁸ case with autopsy findings the first recorded and Kund's⁴⁹ inaugural dissertation make the condition one that now can be said to occupy an assured position in the classification of nervous diseases. Spiller's findings prove that the disease is a muscular one and not due to changes in the central nervous system.

A consideration of the literature on the neuroses entails the selection of papers which are suggestive of advance along the most hopeful lines and this advance may be said to be shown by two tendencies, a more careful study with ever improving methods of the objective symptoms which most neuroses present and the effort to appreciate the psychical elements which are chiefly concerned in their production. This can of course hardly refer to epilepsy which is rapidly progressing to the class of organic diseases. The origins of the phenomenon

are at present of more importance than the psychical symptoms that result. Of the enormous number of papers that have appeared this year on epilepsy it is difficult to select any that have indicated advance. There have been a number of papers dealing with the study of a considerable material in which various questions in respect to age, influence of hereditary, of various periods of development in the life of an individual, the curability and the occurrence of the disease, etc., are considered. Randall⁵⁰ records a case of what is called otitic epilepsy which was cured by a successful operation on the ear. This paper is mentioned for the reason that it emphasizes the importance of careful otological examinations as a routine in all epileptics. Spratling has shown the futility of the claims of Gould and others of the close relation aetiologically between very slight errors of refraction and epilepsy. It is very evident that this question is not a dialectic one and that its truth or falsity can only be decided by actual experiments by the way in which the neurologist shall have a share, contrary to Gould's implied wish. Spratling has put this theory to the test in the colony of epileptics at Sonyia and has found that none of his epileptics have been benefitted by the correction even to the microscopical degree advocated by the oculist. The one case that showed some signs of improvement relapsed again into his old condition. Spratling⁵¹ brings this out in a short note. In hysteria the really notable paper of the year from the point at least of novelty and suggestiveness is Freud's⁵² careful description of a psychoanalysis of a case of hysteria. Freud's work in the investigation of hysteria by purely psychological methods is much less known in this country than it deserves and his paper this year gives an opportunity to bring out in a more definite manner his great service to neurology. In this paper Freud gives a history of a case of hysteria in which the method has been used for a long period of time, all with most interesting results from the standpoint of origin and development of symptoms. Though the general theory of Freud in regard to the origin of hysteria has not been accepted yet there is no question as to his service to neurology in introducing an entirely new conception of the chief aetiological factor in hysteria and a method by which this conception can be worked out. Ricklin⁵³ also makes use of this same method in an analytic study of a case of hysteria. Both these papers represent a tendency much to be encouraged, that is the use of psychological methods in the study of hysterical symptoms. It is certainly an advance over the purely case description in which there was nearly always a tone of wonderment that such things could be and is likewise an advance over the other tendency to force all hysterical symptoms into some sort of lame relationship with material changes in the central nervous system whose existence was assumed.

Friedman's⁵⁴ paper deals in a critical way with Janet's work on

psychasthenia and particularly with the role of obsessions. It is a careful study, critical in spirit, of Janet's effort to establish a neurosis apart from hysteria and neurasthenia, a neurosis based upon fundamental characteristics in the individual. These three papers may be taken as examples of the newer tendencies in the study of functional diseases, that is to submit their symptomatic manifestations to the most careful psychological analysis. It means that we are no longer satisfied with the mere narration of curious symptoms but there is a demand for the understanding of origin and causes.

Any attempt to put in a few lines an account of the unusual activity in the study of psychiatry would be absolutely futile. It is likewise impossible to indicate the advances in this field because they have been more those of method than the increase in definite facts. It may be sufficient to indicate that two subjects have seemed to take up a large part of the interest of psychiatrists. The one is the discussion of dementia praecox and the other that of hypochondria. There have been numerous papers devoted to the first of these subjects but it cannot be said that there has been any definite decision reached. Sachs's⁵⁴ paper noticed in the review of last year emphasizes the position taken by him in his opening address before the American Neurological Association. Sachs does not deny the existence of the type described by Kraepelin but suggests that the symptom complex is too complicated to unite into one disease. He also emphasizes the fact that the term dementia is badly chosen for a certain number of these cases recover. De Montyel⁵⁵ denies the right of this disease to a distinct place in the classification of mental disease because there is too large a per cent. of recoveries as much as sixty-five per cent. in the class of cases described by Kraepelin. There is a dementia praecox but it is an entirely different type and occurs much earlier. This paper represents the extreme of the negative opinion in respect to the place in the classification of the disease. Parane⁵⁶ describes the position taken by the chief psychiatrist in France on the question. His paper is a thoughtful exposition of the whole question from the typical French point of view which in the main is concerned with the accurate description of symptoms and the careful consideration of the type. He says that the Kraepelin idea is accepted in France with some limitations. He likewise calls attention to the fact that the term dementia implies incurability and precocious implies that the disease is one of youth when neither of these limitations are found in the manifestations of the disease. Hecht⁵⁷ has written a very readable paper in which the history of the dementia praecox idea is given and the present status of the question as far as it has a status. The account of some typical cases renders the paper more valuable than the usual run of papers on this subject. These few papers are noted simply to show how wide at present is the divergence of opinion. Lipschitz⁵⁸ has

written a very exhaustive paper on the aetiological factors concerned in melancholia based upon a large clinical material. In spite of the care used in this study there is the same degree of indefiniteness which for the present at least seems to be natural in discussing etiology in insanity. Bonhoffer⁵⁹ in an interesting paper calls attention to the fact that Korsakow's psychosis may be placed in other conditions than alcoholic polyneuritis. He believes that alcohol alone can not produce the symptom complex. The report of Roy⁶⁰ on the subject of hypochondria at the meeting of the French alienists at the congress of Rennes contains the outline of the papers and discussion read there. It appears that the consensus of opinion was that it could not be considered a separate disease. The awakening of interest in this neurosis may be considered as one of the striking incidents in the literature of psychiatry of this year. Macpherson⁶¹ in one of his Morison lectures discusses the cause and distribution of insanity and comes to the surprising conclusion that external factors have less to do with the causation of insanity than has been believed. Hygienic conditions, alcohol and surroundings are less important than the fact that there is a process inherent in the fertilized ovum acting towards the production of insanity the nature of which is not known. A careful investigation of this kind without any preformed opinion and without the influence of traditions in regard to aetiology is bound to yield interesting results. Kraepelin's⁶² discussion on the present day clinical problems should be read as coming from one who more than any other psychiatrist at present sees more clearly into the dangers and weakness of the sharp distinction of clinical types.

Mention in justice must be made before ending the clinical part of this review to two papers by Head and Rivers⁶³. One paper an introduction to the other deals with the statement of the problem of the efferent system and the presentation of a new theory to explain the problem and the other with a mass of experimental and clinical data upon which the new theory rests. For the latter a large number of injuries to peripheral nerves in cases of trauma have been carefully examined and the results tabulated in the light of new theory advanced. For wealth of detail, accuracy and skillful interpretation of sensory findings this paper is in a class apart. It is easily the most significant contribution to the literature of the sensory nervous system that has appeared in recent years. The interest in the study of the spinal fluid in relation to disease of the nervous system is now several years old; first started by the French investigators it has rapidly aroused attention among investigators everywhere. Mott⁶⁴ in a timely article gives a resume of the whole subject touched here and there by his own critical point of view. He is convinced that the lymphocytosis in tabes and in dementia paralytica is a constant finding but regards the plasma cells as altered lymphocytes. The study of the

fibrillae in pathological conditions has received an impulse since Marinesco's initial work. It must be said however that the results so far obtained have not added much to the knowledge for the reason that the normal anatomy of these structures is by no means clear. Dagonet⁶⁵ has studied them in dementia paralytica. Ludlum⁶⁶ attempted to produce in the nervous system of rats conditions which might bring them into relation with that found in cases of insanity in man by means of various methods of producing fatigue. His results however are not at all convincing. Marinesco studied the neurofibrillae in the nucleus of the hypoglossus after resection of the nerve and he found that the reaction and repair began around the nucleus of the cell. It might be said that the study of the neurofibrillae both in normal nerve cells and in those altered by disease has not been productive of any new facts that can be accepted as positive and therefore the whole question remains in much the same state as it was a year ago though there has been evidence of a great deal of earnest work.

Batten⁶⁸ finds that thrombosis of the anterior horn vessels in anterior poliomyelitis is to be regarded as the primary process and the inflammatory condition of the vessels the secondary thus combating the opinion formerly held which was the reverse of this. Ranny⁶⁹ describes the findings in two cases of Friedreich's disease reported clinically by Whyte. This paper is an exceedingly valuable addition to our knowledge of this subject data concerning which has been very meagre. No changes were found in the brain or cerebellum. This finding is rather opposed to the prevalent opinion. The posterior and lateral column changes are believed to be due to the same process. The nervous elements are believed to be primarily involved the interstitial tissue secondarily. Degenerative nerve structure is replaced by neuroglia. The pathogenesis of the disease as well as the selective action of the process whatever it may be is entirely unknown. Saenger⁷⁰ believes that the choked disc is a product of increased intracerebral pressure and not due to the toxic action of substances acting on the nerve endings. This authoritative statement will be influential in directing attention to this much discussed subject again. Orr and Rows⁷¹, whose work on the posterior root ganglia is already so well known, have studied the system lesions in dementia paralytica with the view of determining the point of origin of the tabetic process. Their conclusions which are of great interest supports Gower's assumption and is to the effect that tabes is a system disease which begins as a parenchymatous degeneration of the sensory protoneurons starting at the point where the neurilemma is lost. Caminti⁷² continues his study of the Gasserian ganglion begun several years ago with the physiology and normal anatomy and now considers its pathology in relation especially to trigeminal neuralgia. After reviewing carefully

the work previously done by other investigators and the facts obtained by himself he comes to the conclusion that the changes found in the nerve cells are secondary especially those which can be said to be due to pressure exercised by the deposit of interstitial tissue, such as sclerosis. If they exist then the ganglion can reasonably be said to be the seat of the trigeminal neuralgia. Robertson and M'Rea⁷³ have continued their search for the organism which they found in cases of dementia paralytica and tabes; this is a diphtheriod bacillus and is present especially in the urethra. They believe that their work is confirmatory of Orr and Rows noted above. The latter believe that the tabetic process comes about through the influence of some noxious agent in the circulating blood or spinal fluid acting upon the nerves at the point where they lose their neurilemma sheath. The bacillus may be the cause of the toxic agent referred to. Raymond and Castan⁷⁴ report the results of eighteen cases of amyotrophic lateral sclerosis studied pathologically at the saltpetriere. This large material did not furnish any new data. The anterior horn cells were everywhere found to be affected in varying degrees of intensity. The anterior lateral tracts were found affected the cerebellar escaping the process. Nothing new in regard to pathogenesis or etiology was noted.

There has been a marked lack of interest in the discussion of the neuron theory this year. This appears strange as for the last few years papers of this sort largely filled the space which could be devoted to anatomy. There is little doubt that the discussion will be again taken up as soon as the proper anatomical status of the neurofibrillae will have come about. Mention should be made here of a very valuable paper by Farrar⁷⁵ on the development and the history of the modern technique in the study of the histology of the nervous system. This is a comprehensive account of the whole subject and just at present it may be considered most timely. Timely also is a paper by Muskens⁷⁶ which aims to determine in a more accurate way than has yet been the case just what is the relation of the spinal vertebrae to the underlying spinal segments. He did this by selecting four fixed points, the fourth cervical, first, seventh and twelfth dorsal vertebrae driving nails through them and then laying open the cord beneath. Twenty-two bodies were in this way studied. The results obtained show marked variation from the commonly accepted idea and are of especial interest to the surgeon and neurologist in their effort to determine the seat for operation on the spinal cord.

The subject of the toxicity of the blood and spinal fluid in epilepsy especially has been a question upon which there has been a difference of opinion for a long time. Ceni for one believes that in the blood of epileptics there exists specific toxin which can be used to immunize other epileptics against its effect. His results as is well

known have not been confirmed. Donath has by repeated experiments convinced himself that the choline contained in the spinal fluid of epileptics is an important factor in the causation of the epileptic attacks. Buzzard and Allen⁷⁶ have made elaborate experiments to find out the truth of this assertion and not only have observed the results clinically but have studied the nervous system of the animals experimented upon pathologically. Their opinion is therefore worthy of consideration. Their conclusions are definitely against the theory that choline has any marked effect either as a cause of the attack or as producing any marked effect on the nervous system in an anatomical sense. Kaes⁷⁸ work deserves mention as showing the place where anatomical research may be made to touch some of the most vital points of interest to the neurologists. He attempts to find some relation between the width of the cortex and the degree of intelligence of the individual. His paper contains careful plots of his results and also shows the method by which his results are obtained. This certainly is a field in which study will give interesting data.

The trend of the better neurological thought may well be indicated in the brief mention which can be made here of therapeutics. The use of drugs in a merely empirical sense is rapidly giving way to methods of physiology, education, training and the use of other measures such as orthopedics and various surgical procedures which increase in effectiveness as the neurologist is enabled to arouse in the minds best fitted to use these methods an interest in the therapeutic problem set before him. In this kind of therapy there lies the future and that it will repay investigation can be seen from the ever accumulating mass of experience which can only be indicated in this place. The papers of Cushing, Frazier, Spiller, Taylor and others will enlighten those whose interest has been awakened. Especially is Cushing's paper on the Special Field of Neurological Surgery suggested as representing the best opinion from the surgeon's point of view. Of the more specifically therapeutic means devised to relieve symptoms the accumulated experience with the use of serum for the treatment of Graves' disease might be mentioned. First advocated by Mobias it has now been extensively used in many different forms. The consensus of opinion appears to be that it serves an important adjuvant to other logical methods such as rest, hygienic and hydro-pathic measures. As a specific it has not fulfilled the expectations which were at first aroused concerning it.

There has been a marked absence of larger monographs and new text books in this year's literature. Possibly Patton's text book on Psychiatry has been the most ambitious contribution in English. An English translation of Dubois' Psychoneurosis and its Mental Treatment by Jelliffe will give to this work a wider publicity among English readers. Bianchi's treatise on Psychiatry emphasizes the impor-

tance of the Italian work in Neurology and the need of adequate translations into English. Camus and Pagniez monograph on the treatment of Hysteria and Neurasthenia by Isolation and Psychotherapy is to be regarded as a valuable contribution to the newer therapeutics especially as it brings out in a very decided manner the value of persuasion and determines exactly the proper place which the isolation itself should occupy in the scheme of treatment. A new edition of Oppenheim's text book serves but to increase the debt which all neurologists owe to him.

In closing the review of this year's work in Neurology and Psychiatry the author wishes to say that the task of selection becomes each year increasingly difficult on account of the activity displayed by investigators everywhere. The impression left after a general view of the work of one year is that the problems of clinical neurology and to a less degree psychiatry are becoming more intricate, and definite facts of a new sort less and less easy to determine. Further than this it might be said that there is at present a real need to go over the field of facts already believed to be certainly proven in order to test them in the light of the new points of view which the labor of preceding years has made possible.

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GENITO-URINARY SURGERY.

IN CHARGE OF

H. McC. JOHNSON, M. D.

Judging from the small amount of literature on Edebohl's operation of renal decapsulation for the cure of chronic interstitial nephritis, we must conclude that the results have been disappointing, or, at least, have not been encouraging. Brewer¹⁰ is unable to report any recoveries out of ten decapsulations on five patients.

The subject of surgical treatment of nephritis, however, has not been neglected, as Ayres¹ tells us that in sub-chronic and chronic parenchymatous nephritis lavage of the renal pelvis will check the disease and markedly improve the general condition of the patients, in those cases that have not reached the stage known as cirrhotic kidney. According to Johnson², in parenchymatous nephritis lavage produces startling results.

The importance of recognizing and treating pyelitis in its earliest stages is brought forcibly to our attention by Kelly³, who says that the severer grades are often the sequelae of the milder forms of the affections of long standing. The milder forms are best treated by rest, abundant water and urotropine. If there is not a speedy improvement, the next simplest plan of treatment is catheterization of the kidney every two or four days for the purpose of evacuation, distension of the pelvis, irrigation, and instillation. Boric acid and nitrate of silver are the best drugs in this connection. The severer forms of the disease may be treated by irrigation, which often brings temporary relief. As a rule, however, the kidney must be opened and drained; if it has been extensively diseased, it should be removed.

From Johnson's²⁴ experience in twenty-two cases, he finds that oxaluria or lithaemia is a causative element in the production of symptoms of pyelitis complained of by patients presenting themselves for treatment and that marked improvement follows the first lavage. In pyelitis startling results are obtained by lavage. He prefers the silver salts in a warm saturated solution of boric acid as a vehicle.

Ayres⁵ tells us that not enough importance has been given to the probability that a large percentage of the cases of chronic nephritis, in whom no discoverable cause for the inflammation can be found, are really due to extension of inflammation from the renal pelvis, and that lavage will certainly cure a beginning nephritis due to this cause. Cirrhotic kidneys are not influenced, or are made worse.

Sampson⁶ has conducted four operations upon the lower end of

the ureter by the extraperitoneal route under local anesthesia, using Schleich's infiltration method. Although the operations lasted for some hours, the only apparent effect, aside from the postural discomfort and at times some pain, was that of fatigue, as from a similar length of time spent in a dentist's chair. Pinching, cutting and suturing the ureter in these cases apparently did not cause any pain. Closing the abdominal wound was the most painful step in all four operations.

In the diagnosis of renal and ureteral calculi, Fowler⁷ lays stress upon taking a full, complete and satisfactory history. Tenderness along the ureter upon deep palpation is a suggestive sign. He calls attention to the fact that in uninfected cases the urine between the attacks may be negative. The cystoscope, ureter catheter, and x-ray are all of great service in completing the accurate information.

By attaching one end of the wire stylet in a ureter catheter to a phonendoscope and fastening a metal tip to the other end of it, Cabot⁸ has been enabled to hear the grating of the tip against a stone in the ureter as the catheter is passed up. The slightest sounds are carried from the point of contact to the ears. The least contact of the metal end with a stone can be heard with great distinctness and the presence of a calculus determined. We can also determine whether an obstruction in the ureter is due to other causes.

The use of a metallic stylet in the urether catheter with which the ureter is catheterized before radiography is done, when looking for a calculus shadow, has been of signal service to Fenwick⁹ in differentiating stones in the ureter from shadows that might be caused by other bodies. Brewer¹⁰ finds that in 41 per cent. of cases giving a clinical history of stone in the kidney, or ureter, the diagnosis was wrong. In order to elicit the cause of these mistakes, he has carefully reviewed the history of thirty-six cases, and investigated the symptoms with reference to pain. He finds that the point of greatest intensity of pain is not infrequently located somewhat below the kidney, and in several instances at or near McBurney's point on the right side, or at a corresponding point on the left. Frequent or painful micturition, occasionally associated with severe tenesmus, was found to be present in one-half of the cases of stone in the kidney. Fever appeared to be a symptom only if the ureter became occluded. Tenderness over the kidney or ureter was a constant symptom. Blood in the urine is usually present at some time, though it may be in microscopic quantity, yet it is often entirely absent at the time of a given examination. The presence of pus in the urine is of very little value in a diagnostic way. The main reliance to diagnosis is the cystoscope and the ureter catheter. The x-ray is of inestimable value in competent hands, if we reject all plates which do not show the outlines of the psoas muscle and transverse processes of the lumbar ver-

tebrae, and in which the shadows of the probable stone are not well-defined.

Through experiments on dogs Bernasconi and Colombino¹¹ have demonstrated the feasibility of anastomosing one ureter into its fellow. When in the course of an operative procedure the ureter is accidentally wounded, if the division is a few centimeters from the bladder, the ureter may be pulled down 3 to 4 centimeters and implanted into the bladder. If the division is higher up, either at the level of the iliac or the lumbar region, two expedients presents themselves: (a) a simple section without a loss of substance, or with a slight loss of substance, when we may approximate the divided ends of the ureter and anastomose them according to the method of Van Hook or others; (b) section with loss of ureteral substance, rendering impossible the coaptation of end to end. In this case lateral anastomosis of the two ureters with each other should be attempted.

Vale¹² considers the relative value of the ureter catheter and the segregator, and says there are well defined indications for the ureter catheter, but in the large majority of cases the segregator of Luys will be found sufficient to permit a rigorously precise diagnosis of the functional state of the kidneys and lay down the indications for operation. Boddeart and Luys have entered into quite a discussion as to the relative merits of their own segregators, with the advantage apparently in Luys' favor.

Ayres¹³ regards the direct view cystoscope much more useful for ureteral work than the indirect view instrument. He has constructed an instrument which is based on the lens system that is capable of giving both a direct and an indirect view. The difficulty of leaving the ureteral catheters undisturbed upon withdrawing the cystoscope is overcome in his instrument.

Luys¹⁴ also mentions the advantages of the direct view cystoscope and describes his instrument, which is essentially a straight tube without a lens system. As the inconvenience of an instrument of this design is that, as the urine comes down from the ureters it gets into the lumen of the instrument and obstructs the view, he has placed a tube at the lower part of the cystoscope, which, through suction, constantly keeps the bladder dry. The light is placed in the upper portion of the cystoscope to better illuminate the field. With this instrument the true aspect of the vesical mucosa and the ureteral openings may be ascertained. Denis¹⁷ has devised a method for righting cystoscopic images.

From examination of 150 fresh bladders Uteau¹⁵ finds that the measurements of the normal adult trigone usually given are too small. While distention of the bladder increases the area of the trigone, especially in women, contraction of the bladder diminishes it, especially in men. Hypertrophied prostates do not of themselves increase the

dimensions of the sides of the triangle, although they often deform the prostatic urethra and vesical floor. Uterine retroversion alters considerably the inter-ureteric distance, and to a less degree the sides of the triangle.

Sherman¹⁶ tells us that it is only necessary to conserve such part of the bladder wall as surrounds each ureteral opening individually when transplanting the ureters into the rectum and that this is not done with the idea of sphincteric control, but with the idea that the wound of the mucous membrane is made at a reasonable distance from the mouth of the ureter and that the ureteral mucosa itself is left absolutely intact. He reports one successful case of transplanting the ureters into the rectum according to Peters' method, with the exception that he used the catheters in the ureters only as a guide during the operation, and removed them immediately after the transplantation of the ureter into the rectum. There has been no ascending renal infection and the rectum acted well as a bladder for the urine, tolerating it for three to four hours at a time.

Caspar¹⁷ makes a distinction between *genital* tuberculosis, which begins in the epididymis, prostate or seminal vesicles, and extends from there to the bladder, and tuberculosis of the *urinary* tract, which begins in the kidneys and at times descends to the bladder. In numerous cases of tuberculosis of the kidney, which have extended to the bladder, the second kidney remains free from tuberculosis, and it is conclusively proven that renal tuberculosis almost always *begins* unilaterally. For those cases in which tubercle bacilli cannot be found, we must bear in mind that the absence of all bacteria in cystitic urine is most suspicious. An enlarged kidney does not necessarily mean a diseased kidney; indeed it may be the relatively healthy one representing compensatory hypertrophy. The cystoscope does not always present specific pictures in cases of tuberculosis. There exists a cystitis and pyelitis granulosa which much resembles tubercular nodules. The ureter catheter is the most rapid and the most certain aid to diagnosis. Inoperable cases usually die rapidly in course of a few years. Those of renal tuberculosis, which might be, but are not, operated upon, have a bad future. In the majority of cases the disease progresses in the organ itself, then leads to metastasis, and finally extends by continuity to the ureters and the bladder. While this generally obtains, yet exceptionally the process may even be arrested.

In dealing with tuberculosis of the kidney remember, says Kelly¹⁸ that the enlarged kidney found in the loin may be the one functionally enlarged—and, therefore, the only sound organ. Twice has such a kidney, doing all the work of the body, been taken out. There is a great risk of making this mistake.

Lewis¹⁸ describes the uses and methods of manipulating his catheterizing and operative cystoscopes and speaks of his operative work

upon the lower end of the ureter, such as the removal of stones and cutting and dilating strictures.

To Goelet²⁰ the position of the fixation of the kidney in the operation of nephropexy is most important. Fixation without restoration to its normal position does not afford relief to the symptoms. The unusually low position of a fixed kidney results in congestion and inflammation, because the circulation is retarded in consequence of the lengthening and narrowing of the vessels supplying the organ and the necessary upward direction of the blood current in veins adapted to act normally in the level, and because there is interference with the outflow of the urine, which permits it to accumulate in the pelvis. Goelet strips the kidney of the tissues surrounding it, but not of its true capsule, and after inserting two sutures under the fibrous capsule only, one at the centre of the kidney and the other midway between this and the lower pole, brings the sutures out just below the twelfth rib and ties them over a fold of gauze.

For determining the functional capacity of the separate kidneys Kolischer and Schmidt²¹ say the various methods that have, heretofore, been proposed have been found wanting. Even cryoscopy of the urine and blood is faulty. The estimation of urea, and certain staining fluids, have given unsatisfactory results. The test of electric conductivity of urine is not reliable. By passing indigo-carmin through the kidneys and then applying the electric conductivity test they have attempted to supply this deficiency.

On the other hand to Krotoszyner and Willard²² the three tests generally employed to determine kidney function (cryoscopy, phloridzin, and urea estimation), have been valuable aids, diagnostically and prognostically. Whenever they find in separately catheterized urines great differences in cryoscopic urine points, in sugar excretion, and in the amount of urea, they feel justified in concluding that little or no work is done by the diseased kidney, and that the other side is responsible for existing urinary function. They lay particular stress upon the fact that all three tests must coincide, and must show good, or, at least, fair points on the remaining side before nephrectomy is permissible.

According to Freyer,²³ age is no contraindication to prostatectomy. It is the general condition, and especially the state of the kidneys, that must furnish a guide for operation. He reports seven cases of prostatectomy on octogenarians and one on a patient seventy-nine years of age, with seven recoveries and one death.

Ruggles²⁴ tells us that the internal vesical sphincter is quite weak in health, and as soon as three or four ounces of urine have collected in the bladder, it relaxes, and permits the urine to pass down, filling the posterior urethra until it meets the resistance of the external sphincter. The function of the vesical, or internal sphincter, is then at an end until

after the next act of urination. So that to explain incontinence after prostatectomy satisfactorily, we must look to paralysis, partial or complete, of the external sphincter. He, therefore, suggests, that if perineal prostatectomy is performed, the incision into the urethra should be as close to the prostrate as possible, exactly on the median raphe of the compressor urethrae, and the utmost care must be exercised to avoid stretching and laceration of the muscle.

Proust²⁵ finds that partial prostatectomies, such as the removal of a median lobe, are to-day almost completely given up. The mortality of the partial operation is high and the results indefinite. Because of these results, it is almost universally superseded now by total removal of the gland. While the mortality of the supra-pubic route is greater than in the perineal, the post-operative complications are less numerous. Notably, incontinence of urine and decadence of the sexual power is not observable; and the efficacy of supra-pubic prostatectomy is equal if not superior, to the perineal.

Young²⁶ speaks for the preservation of the urethra and the ejaculatory ducts in cases of prostatectomy. Much stress is laid upon preliminary cystoscopy. In cases where a general anaesthetic would be dangerous, spinal cocainization has proved of great value. The principles of the after treatment consist in keeping the kidneys very active by means of water by mouth, subcutaneous infusions, or rectal normal salt injections, in getting the patient up as soon as possible, in early removal of the gauze and tube drains, and in avoidance of instrumentation. For those cases who have frequency of urination after operation, Young observes that there is diminished bladder capacity, and has obtained good results from forcible hydraulic dilatations. By stitching the separated levator muscles together in front of the rectum at the time of operation, in his last 25 cases he has been enabled to avoid rectal fistulae. Epididymitis or incontinence of urine as a complication is rare.

According to Follen Cabot²⁷ an operation for hypertrophy of the prostate should be undertaken on the earliest evidence of urinary obstruction. The habitual use of the catheter by prostatics should be relegated to the rear. Long before such a practice has become necessary, the prostate should be enucleated. We would thus operate on patients in fairly sound condition, instead of those with most of their vital organs damaged. For those cases in too bad a condition to stand an immediate prostatectomy, the bladder should be opened supra-pubically, or by the perineal route, for drainage, vesical lavage and general treatment. If this slight operation has not proven too much for them, a complete operation can be performed later on. If they do not survive the simple drainage, they certainly would not recover from a prostatectomy. Sounds for dilatation of the prostatic urethra

do more harm than good. A cystoscopic examination of the bladder at the time of, or just before the operation, is of decided advantage, if easily executed. Some patients cannot be cystoscoped, and so no prolonged effort should be made to do so. Where other conditions are favorable, perineal prostatectomy is the operation of choice. Fifteen cases without a death are reported. It is noteworthy that he does not use any kind of packing for the wound, employing a large rubber tube, of forty or more French, placed in the bladder through the perineal wound.

Lewis²⁸ condemns orchidectomy, vasectomy, ligation of the internal iliacs, injection of carbolic acid, application of electricity, and allied methods, and says that the Bottini operation should seldom, if ever, be adopted. Prostatectomy is the procedure of choice and the preferable route is through the perineum, the preferable method that of Young or one of its modifications, but much depends upon the skill of the operator as regards the method employed. In patients with foul bladders and diseased kidneys, who, we have reason to expect, would not stand an extensive operation, thorough drainage should be first instituted either by supra-pubic or perineal incision under local anaesthesia, to be followed later by enucleation, if deemed advisable. The use of local anaesthesia, especially spinal cocainization, is of great value, and should be more extensively employed.

From an experience of thirty-six cases, Chetwood finds that "contracture of the neck of the bladder" is a common cause for vesical obstruction; its relief is safe and sure by his method of galvano-prostatotomy through a perineal opening; and it is often an explanation for what has been termed *prostatism without enlargement of the prostate*.

According to Keyes, Jr., "contracture of the neck of the bladder" exists as a strictured condition entirely independent of the prostate and yet prostatic hypertrophy may be coincident with it, so that a prostatectomy may fail to relieve until the stricture is operated upon. The operation most suited for this condition is the galvano-cautery through a perineal incision, after the method of Chetwood.

Recognizing that in carcinoma of the prostate cure can be expected only from radical measures, Young has undertaken removal, in four cases, of the seminal vesicles, vasa deferentia, and most of the vesical trigone with the entire prostate, and says the procedure is simple and effective, and markedly satisfactory functional results follow. His method of operating is the same as that employed by him in prostatectomy until the under surface of the prostate is exposed. Instead of now opening the prostatic capsule, the urethra anterior to the prostate is exposed and completely divided transversely. The prostatic attachments are now divided anteriorly and laterally, completely severing the prostate from all important attachments, except posteriorly.

The now mobile prostate being well out of the wound, by depressing the tractor and making strong traction, the anterior surface of the bladder is exposed and incised at a point in the middle line about 1 cm. behind the prostatic-vesical junction, this division being continued on each side until the trigone is exposed. The ureters are now found and the line of incision carried across the trigone so as to pass 1 cm. in front of the ureteral orifices. The seminal vesicles and adjacent vasa deferentia are freed anteriorly as high as possible and divided, thus removing the entire prostate with its capsule intact, the seminal vesicles, 4 cm. of the vasa deferentia, and a cuff of the bladder. The anterior wall of the vesical opening is caught with forceps and united to the membranous urethra. The remainder of the vesical wound now presents as a longitudinal opening, which is closed by sutures. The wound is lightly packed with gauze, the levator and muscles drawn down together in front of the rectum and the skin sutured, except in the angle in front, for exit of the gauze drain. The catheter is put through the meatus into the bladder.

From a study of many prostates Motz and Perearnau³² inform us that we find the adenomyomatous productions, which constitute the essential lesions of hypertrophy of the prostatic region, more frequently in the aged, and that these are developed at the expense of the peri-urethral glands which are separated from the true prostate by an intra-prostatic sphincter; that in the large and medium hypertrophies, the prostate properly called is pushed back to the periphery, it is more or less atrophied, and constitutes the pseudo-capsule, that which is supposed to be the capsule left when a complete prostatectomy is done. In most prostates with adeno-myomatous productions there are also some inflammatory lesions, which are co-incident. Chronic prostatitis is rarely the cause of complete or incomplete retention of the urine.

Of much significance is the timely warning of Courtney,³³ who calls attention to the numerous mistakes made in confusing the bladder and kidney symptoms of locomotor ataxia with those produced by stone in the bladder or kidney, or by prostatic hypertrophy. The first reflex mechanism to be attacked in locomotor ataxia is largely fortuitous, and the primary point of election may lie in the bladder, as logically as elsewhere. Remembering this, the surgeon will save himself from many a regrettable operative interference and his patients from ordeals which they can ill afford to undergo. A great many of the vesical and renal crises of locomotor ataxia bear a close superficial relation to the conditions obtaining in cases of vesical and renal calculi; and many others, in the same surface way, practically parallel the clinical features of hypertrophied prostate.

Evans and Fowler³⁴ write upon punctured wounds of the urinary bladder, and report a case in which there was a double puncture of the bladder through the perineum, with laceration of the anterior wall of

the rectum. Immediate laparotomy was performed, the bladder and peritoneal rent closed, and the abdominal cavity washed out and closed. A retention catheter for drainage was placed in the bladder through the large perineal wound. Fourteen days later the laceration of the bladder, rectum and perineum was repaired, the patient making a complete recovery.

In three cases of general gonorrheal infection investigated by Wynn³⁵, gonococci were demonstrated in the joints and lungs and on the valves of the heart. Sufficient evidence has accumulated to show that in these cases there may be a direct infection with the gonococcus itself, an absorption of a toxin, gono-toxin, or a mixed infection with other germs. In pyemias of obscure origin, a routine examination of the urinary organs, and especially of the prostate, should be made. A positive diagnosis may be made from cultures of the blood.

Fuller³⁶ is inclined to the view that gonorrheal rheumatism has the gonococcus for its cause only in a secondary manner; that through the localized inflammatory reaction which arises from the presence of the gonococcus in connection with the mucous membrane other germs enter the system, the result being the usual groupe of septic symptoms classed under the clinical heading, gonorrheal rheumatism. He even holds that gonorrheal rheumatism, so-called, can exist entirely independently of the gonococcus. He is of the opinion that the systematic infection in the male usually enters from a special focus, and that special focus is represented by a seminal vesiculitis. He has subjected four cases to seminal vesiculotomy and almost immediately in all of these cases the active symptoms of gonorrheal rheumatism wholly disappeared. At the end of a very short time they were entirely free of their rheumatism.

In acute suppurating arthritis of gonorrheal origin, Gilliard³⁷ employs puncture followed by intra-articular injection of sublimate, or, better still, sublimate lavage. It is especially applicable to the knee and relieves the pain even in those cases where great distension of the joint is rapidly produced after the lavage; it reduces the fever; it does away with prolonged immobilization and consequently irremediable adhesions. In severe cases several sittings are necessary, never more than three. No case of ankylosis has occurred in his results. The treatment is recommended for acute blennorrhagic arthritis only, and not for cases of arthritis with streptococcus or staphylococcus infection.

The investigations of Oppenheim and Loew³⁸ lead them to conclude that retroperistaltic movement of the vas deferens is the determining factor in the causation of epididymitis. Irritations and injuries of the posterior urethra set up a retroperistaltic movement of the vas

deferens, and thus infection is rapidly transmitted to the epididymis, causing inflammation of the part.

Valentine³⁹ answers the criticism of those who denounce irrigations in gonorrhea. He says that when a patient with acute anterior gonorrhea comes under treatment before the adnexa are involved, he will escape complication, if irrigations are cautiously, skillfully, gently and judiciously employed. The pain is promptly arrested, discharge reduced, and the course of the disease abbreviated. No other form of treatment will relieve pain and reduce the discharge as quickly as do properly administered irrigations. The irrigation treatment, like any other treatment, is positively dangerous, unless employed with caution, tact and gentleness.

Harrison⁴⁰ mentions several cases of urethral stricture in which a false passage was made from the bulbo-membranous junction to the bladder, the urine drawn and subsequently voluntarily passed through this false passage, the patients doing fairly well. The last case came into the hands of Harrison and the natural channel was restored by operation.

In a large number of cases of abscess of the perineum, in which the pus seems to be altogether below the triangular ligament, and to be limited to the perineum, according to Alexander⁴¹ there are also foci of suppuration situated above the triangular ligament. These latter are found in the prostate, and alongside of the membranous urethra posteriorly. They seem to originate in the glands of the prostate, the glands of Littre, or the glands of Cowper. These collections of pus do not always communicate with the perineal abscess, or at least there is no apparent communication. In treating these cases, after making the usual median perineal incision and opening the membranous urethra to the prostate, a careful and systematic exploration is then made for any foci of suppuration; and it is sometimes useful to make counterpressure with the finger of the other hand in the rectum upon its anterior wall during the examination, when all foci may be found and freely opened.

Gatti⁴² has demonstrated from experimental operations the feasibility of grafting one testicle upon the other. The anastomosis, properly applied, preserves not only the vitality of the glandular tissue of the testicle, but even its function as well, the spermatozoa being abundant and endowed with normal movements. The operation is indicated in cases of operative or traumatic injuries to the deferent canal of a healthy testicle.

Rosenberger⁴³ finds from experiments on English-web and soft rubber catheters of various sizes that exposure to formaldehyde in a closed vessel will sterilize these instruments in twenty-four hours, or

keep them sterile indefinitely after they have been boiled and placed in an air-tight container, without injury to the texture or the fabric. The method employed was to expose the instruments to 5 c. c. of formaline upon absorbent cotton which was placed in the end of an air-tight metal tube containing the infected or sterilized catheters.

In examination of the urine Cabot⁴⁴ gives us timely warning that we are depending too much on our means and instruments of precision in diagnosis. If we depend upon the ordinary findings we are liable to mistake senile and arterio-sclerotic degeneration for chronic nephritis, while in conditions involving passive congestion or acute degeneration of the kidney the urine occasionally simulates that of acute nephritis. Even in cases where no lesions are to be found at autopsy, the urine is occasionally highly albuminous and full of casts. In acute glomerular nephritis, in some cases of subacute and chronic glomerular nephritis, and chronic interstitial nephritis, our means of diagnosis are often at fault. The vast majority of estimations of urinary solids, including urea, are in Cabot's opinion a waste of time. The attempt to estimate the anatomic condition of the kidney by the measurement of albumen and the search for cases is fallacious in the extreme.

The most reliable data about urine are those most simply and quickly obtained—the twenty-four quantity, the specific gravity and color.

Young and Churchman⁴⁵ tell us that in order to distinguish between the smegma and tubercle bacilli in urine, the staining methods are faulty, animal inoculation is tedious, and cultures are unsatisfactory. The method of cleansing, by washing the glands and irrigation of the urethra, gives a sure means of eliminating, in the male, the smegma bacillus as a confusing factor in the microscopic diagnosis of genital and urinary tuberculosis.

Ravold⁴⁶ gives a test for albumen in the urine which he says is ten times as delicate as the nitric acid test. Corrosive sublimate, 2gm.; succinic acid, 4gm.; common salt, 4gm.; water, 50 c. c. Heat. This is added to 50 c. c. of a saturated solution of sulphate of magnesium. The urine is first acidified by adding 1 c. c. of acetic acid to 5 c. c. of urine; filter. Then, by the aid of a pipette, the urine is slowly floated down upon the surface of the reagent in an inclined test tube. If a ring of albumen appears, then heat. The albumen will not disappear.

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LARYNGOLOGY AND OTOTOLOGY.

IN CHARGE OF

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In this brief and necessarily incomplete review of the rhinological and otological literature of 1905, reference will be made, only, to the most important contributions.

The accessory sinuses have again been the subject of much discussion. From his studies of the nose and the accessory sinuses in the American bear Ingersoll¹ finds that some of the numerous branches of the ethmoidal turbinates extend into each of the accessory cavities of the nose and so, in the bear, the accessory sinuses are a part of the olfactory portion of the nose. In man the sinuses themselves are almost shut off from the nose by the contraction of their ostia and their functional activity is lost. Therefore, Ingersoll believes the accessory sinuses, in man, to be simply rudimentary structures. The radiograph has recently been employed in diagnostic work on the sinuses. Coakley² has taken quite a number of radiographs which enabled him to very accurately outline the sinuses. A symposium³ on sinus disease presented at the annual congress of the American Laryngological Association at Atlantic City and the discussion which followed shows that there is still considerable difference of opinion as to the best methods of dealing with the chronic cases. The weight of opinion seems to favor the intra-nasal route of opening and draining the antrum. The majority of the average chronic cases can be brought to a successful issue by simply making a large opening into the antrum through the inferior meatus. In the more chronic cases when there is denuded or necrosed bone with considerable thickening of the mucous membrane lining the antrum more radical measures will be found necessary. The Caldwell-Luc operation is still favored by some. Denker⁴ has modified this operation in that he carries his incision through the soft parts covering the anterior wall of the antrum across the median line, separates and elevates the muco-periosteum from the lateral wall and floor of the nose, removes the antral nasal wall in the inferior meatus and part of the nasal floor. The opening in the canine fossae is made large enough to allow a thorough inspection of every portion of the antrum. He agrees with Kretschmann that it is not necessary to remove every vestige of mucous membrane as recommended by Killian and others. He has found that the mucous membrane is capable of regenerating or returning to normal even if

marked changes have taken place. After curretting the antrum a flap is made of muco-periosteum covering the lateral wall of the inferior meatus and is placed in the floor of the antrum and held in place by gauze tampons. The oral wound is closed by sutures and all after treatment is carried on through the nose. Gerber⁵ opens the antrum in the middle meatus, enlarging the natural opening to extent of removing all the nasal-antral wall in the middle meatus.

As for the frontal sinus, the external operations of Killian and Coakly have their advocates. Both are open to the objection of more or less deformity. This Prof. Killian has overcome by the injection of paraffin. Ingalls⁶ has described a new method of draining the frontal sinus through the nose. His method consists of passing a steel pilot through the natural canal into the frontal sinus and running in over this a hollow burr by which a canal 6 m.m. in diameter is made and then inserting into this canal a self-retaining gold tube so large that the pus will necessarily drain and that the patient may easily wash out the sinus. The advantages claimed by Ingalls are: 1. It causes no scar. 2. It affords sufficient drainage and enables the patient himself to cleanse the sinus. 3. It is much safer than other intra-nasal methods. 4. It can be done early before pathologic changes have taken place and in such cases it may be expected to effect a cure. 5. The early establishment of free drainage usually prevents serious pathologic changes. 6. It is no bar to a later external operation if that should become necessary. Indeed, by taking the place of a part of that operation, it renders it less formidable.

The endo-nasal opening of the sphenoidal cavity with a burr after removing the anterior half of the middle turbinate is recommended by Stoeckel⁷. The entire anterior wall of the cavity is thus removed and the cavity is then packed with gauze. Halsey⁸ gives a post mortem report of a case of encephalitis following a chronic empyema of the sphenoidal cavity. He was able to find only sixteen other cases of the kind reported.

The ocular symptoms of affections of the accessory sinuses as given by Posey⁹ are: 1. Disturbances in vision and the visual field. The involvement of the optic nerve as a consequence of ethmoidal or sphenoidal sinusitis may vary in degree from a simple edema to an active retrobulbar inflammation. 2. Changes in the orbit. A chronic distention of a sinus (hydrops) may occasion a dislocation of the globe. In affections of the sphenoidal sinus involvement of the ocular muscles is not uncommon. Ethmoidal disease chiefly manifests itself in the intraocular disturbances and in the production of asthenopia by interference with the extraocular muscles. 3. Affections of the lachrymal apparatus, especially pre-lachrymal abscesses. 4. Affections

of the lids, especially edema of the upper lid on the nasal side. 5. Affections of the extra-ocular muscles Paresis and even paralysis of one or more of the eye muscles may occur as a consequence of sphenoidal sinusitis. Posey also considers affections of the conjunctiva, of the cornea, of the uveal tract, pupillary changes, cataracts, errors of refraction, asthenopia, headache and neuralgia, referable to sinus disease.

Snow¹⁰ believes that 80 per cent. of the cases of Tic-Douloureux arise from intranasal pressure and sinus disease. He also believes that many neuralgias and headaches are from similar causes, mentioning the middle turbinate, "seemingly innocent" as often the cause. Canfield¹¹ reports three cases of tri-facial neuralgia due to intra-nasal causes and which were relieved by intra-nasal treatment.

Probably no other subject has received so much attention as that of the correction of septal deformities. The sub-mucous resection method is becoming more popular both in this country and abroad, especially so with the younger men. The chief objections to this operation have been the difficulty of the technic and the length of time required to complete the operation. Another factor was the amount of shock following the "trying" operation which often required an hour or more. A number of instruments have been brought forth which greatly simplify the technic and greatly reduce the length of time required to complete the operation. Ballenger¹² has devised a swivel knife with which the cartilage can be removed in one piece. Ballenger believes the average time for doing this operation ought not to be more than ten minutes. He himself has performed the operation in four minutes, including the removal of the bony septum. Hurd¹³ has described a down cutting forceps for removing the septal ridge. The advantages of the forceps over the chisel are that they remove the septum with a much more smoothly cut surface and no assistant is required. The time of the operation has also been considerably reduced in that it has been found that stitching of the mucous membrane is not necessary. Up to the present time no ill effects, such as sinking in of the nose, have been reported, except the case mentioned by Menzel and Mueller in which the cartilage had been removed from under the lateral cartilage. To be mentioned in this connection is the sub-mucous resection of spurs which is now being pretty generally followed.

The subject of hay fever has not received as much attention as in the preceding year. Dunbar¹⁴ claims that the chief cause of the failure of American physicians to get uniformly good results with Pollantin was a too abundant use of the remedy. In a very lengthy article he gives the present status of his discoveries. Leob¹⁵ reports

good results from the use of Pollantin in a series of cases. Denker¹⁶ working on the idea that under other factors in the causation of hay fever a sensitive condition of the nasal mucous membrane is necessary. The author has endeavored to reduce this sensitiveness by a massage of the mucous membrane. This was done by dipping a cotton-wound applicator in a solution consisting of cocaine mur. 1.0, adrenaline chloride 0.01, aquae 10.00, or first spraying the nose with a 1 per cent. solution of cocaine. The massage was done by rubbing the mucous membrane with a cotton-wound applicator dipped in a 1—10.0 Euporpen oil. During the first days the sittings were for two minutes only, later, from four to five minutes for each nasal cavity. If the improvement of the eye symptoms did not go hand in hand with the nasal, a few drops of equal parts of tint. *Opii crocata* and *aqua Destil.* were instilled into the conjunctival sack. Of the eight cases so treated three remained entirely free and three others had slight attacks the following year. In the other cases no improvement followed. Urbanschitz¹⁷ also reports good success from massage of the nasal mucous membrane. He employed an electric masseur described by him. Sterns¹⁸ treats hay fever with bicarbonate of soda powder or saturated solution. The administration of this may be preceded by an application of cocaine. The bicarbonate of soda mixed with some agent (sodium chloride) will diminish or abolish its irritating action. The toxine already absorbed may keep up the symptoms for a time. Hence the treatment, according to Sterns, will not at first appear to be a specific. How¹⁹ has found intra-nasal deformity in one or more of its many forms in a very large percentage of hay fever examined by him. The malformations consisted of deflected and thickened septa, septal spurs, hypertrophied and cystic turbinals, polypi and polypoid degeneration and bony and membranous synechia. One or more of these have complicated almost every case. The nasal defects were most frequently found in the upper and anterior portion of the nasal passages. The hypertrophies were real or tissue rather than vascular. The bulging or local pressure on the lateral walls in narrow nasal passages. In other cases a deflection of the septum pressed its thickened portion against the middle turbinal and lateral wall on one side. These pressure areas, due to thickened and deflected septa seemed to be the chief nasal defects in the cases How operated on and he believes it is the mechanical interference with nasal circulation that makes possible the severe symptoms of hay fever.

A new method of treating acute coryza is advocated by Henle²⁰. He has applied the "Bier's constriction" to the neck in six cases, with good results in five. He found that a pressure of 50-60 m.m. as recommended by Bier in other parts of the body could not be borne around

the neck. Twenty-five m.m. was sufficient to produce the result. The pressure was applied for from one to three hours. In the one case in which the treatment failed a chronic hypertrophic rhinitis was present. There was no discomfort from the bandage.

A new method of treating ozena and other atrophic conditions of the nose and pharynx is advocated by Sonderman²¹ which consists of producing a negative pressure in the nose and pharynx by suction. This is done by means of a pump devised by the author. A loosening of the crusts results and the secretions are drawn from the accessory cavities. The hyperaemia which results also has a decided beneficial influence. Spies²² also reports good results from this method. Newcomb²³ has been experimenting with the mucin treatment advocated by Low during the past two years, and believes it to be a valuable addition to our list of remedial agents. Faalberg²⁴ treated 60 cases of ozena by injecting paraffin into the inferior and middle turbinates with the result that 20 were cured, 35 very much improved and 5 remained the same or had disappeared. Burger had seen no improvement when there was much atrophy. Iglaue²⁵ has devised an operation for the introduction of a permanent canula between the mouth and nose, so as to allow the patient to force the saliva into the nose at frequent intervals. The saliva not only moistens but cleanses and stimulates the interior of the nose. He reports three cases of atrophic rhinitis in which he performed the operation. The results he believes to be satisfactory enough to warrant a further trial of the method.

The question of packing the nose is still undecided. Some authors pack the nose after all operations on the turbinate and septum, others pack only after septum operations. Coronshitzki²⁶ always packs the nose after operation and employs styptic cotton prepared by immersion in a solution of sesqui chloride of iron of a specific gravity of 1280. The excess is squeezed out and then the cotton is dried. He has used the cotton in two thousand cases without any ill effects. The tampon is left in twenty-four hours. There is no irritation following their use. Fredenthal²⁷ reports a death due to careless plugging of the nose. The tampon had been employed to arrest a hemorrhage. The plug had been forced into the antrum and death was due to sepsis. Fredenthal administers from 0.006-0.01 of stypticin from four or five times daily after most nose operations. Wilcox²⁸ advises the employment of large doses of calcium chloride by mouth or rectum. He reports a severe case of nasal hemorrhage in which 40 gr. were given daily with good results.

The galvano-cautery has received more attention during the past year than usual. Anderson's²⁹ paper read before the American Laryngological, Rhinological and Otological Society points out the many

disadvantages of the cautery and believes that the more modern methods in dealing with diseased conditions of the nose have almost entirely supplanted the cautery. In intumescence of the inferior turbinal he employs the "sub-mucous puncture." A sharp cataract knife is inserted under the mucous membrane parallel with its surface and close to the bone. The knife is inserted about one-half inch, the distance depending on the size of the turbinate. The sharp edge of the blade is then turned toward the bone, drawn along its surface, then turned outward and the end rotated in order to destroy a portion of the vascular sinus tissues. The knife is then withdrawn and a pledget of cotton saturated with adrenaline is applied over the bleeding point. After all bleeding has ceased the wound is sealed with collodion, or the nose may be packed. This procedure destroys enough of the vascular tissue to cause cicatricial contraction with relief of the obstructions without the sacrifice of any mucous membrane. In hypertrophic rhinitis the author employs a flap operation, removing a wedge shaped piece of the turbinate and suturing the edges or holding them in place with a pack. The suture being used when the line of incision is sealed with collodion. He believes that the cautery has a place in the treatment of hypersensitive areas in the nose in certain neuroses of nasal origin; but even here it is used in a tentative manner without well defined indications. Kopetzky³⁰ also condemns the cautery as ordinarily used, but advocates the sub-mucous cautery in hypertrophy of the inferior turbinate. He has described a sharp pointed cautery knife, which he introduces beneath the mucous membrane as close to the bone as possible. After the knife has been inserted the electric current is allowed to pass for a few seconds only, and the instrument is at once entirely withdrawn from the nose before it cools. A slight dressing of cotton moistened with a 1 per cent. solution of protargol is then applied to the entire turbinate. The reaction which follows is very slight. The advantages of the sub-mucous cautery are: 1. A lesser amount of cocaine is required for anesthetic. 2. Short time required for the procedure. 3. The after effects and reaction are practically absent. 4. Danger of synechia formation is absent. 5. There is no scabbing or crusting. 6. No destruction of epithelium or functioning structures in the tunica propria. 7. The method effects relief of nasal obstructions, from hypertrophy without interfering with the contractile action of the turbinate, in that it introduces a re-inforcement of the connective tissue strata with scar tissue, without extending this connective tissue to the surface of the turbinate body. 8. Results have proven uniformly good and from present indications the results obtained seem to be permanent.

Fridenberg³¹ thinks the relation of gastro-intestinal disease and

malnutrition consequent to many affections of the upper respiratory tract have not received due consideration. The lack of taste, anosmia, deficient aeration, all have their effect upon the appetite. Nasal obstruction leads to "bolting" food and mouth breathing alters the saliva. The effect upon digestion of swallowing abnormal secretions is well known.

As to the paraffin treatment of nasal deformities, Welty³² reviews the literature and points out the serious results that have followed these injections. He claims that all cases of saddle-nose can be corrected by bone implantation. He reports a case in which he removed a portion of the crest of the tibia and implanted it in the nose. The result was very good. The histological examinations made by Eschweiler³³ show that the paraffin becomes absorbed and is replaced by connective tissue; just how this is accomplished is not definitely known.

Meierhof³⁴ recommends the use of a pair of dressing forceps as a safe instrument for opening retropharyngeal abscesses in children. They should be of a length best suited to free manipulation and which are bent on the flat with the beaks somewhat curved and moderately pointed. The child should be held in the upright position. When the forceps have entered the abscess, the child's head and body should be thrown forward; while in this position the forceps are withdrawn with the blades opened, thus allowing the abscess to be thoroughly evacuated and good drainage established.

Libram³⁵ reports in detail two cases of erosion of the carotid following peritonsillar abscess one of which ended fatally. He was able, also, to find reports of 23 other cases. Of these, 15 ended fatally, in one the definite result was uncertain. He points out the possible danger of opening peritonsillar abscesses under unfavorable surroundings. If an erosion of the carotid is suspected the common carotid should be ligated. He also describes in detail the effect of tying the common carotid. According to Thompson³⁶ the sight of election for opening a peritonsillar abscess is just external to the intersection of an imaginary line across the base of the uvula and another vertically along the anterior facial pillar. Thompson claims the best instrument with which to open the abscess cavity is a pair of Lester's sinus forceps or a modification of the instrument as devised by the author. The blades are forced into the cavity and then opened widely and withdrawn, thus producing a vertical opening through which the pus escapes into the mouth. There is no danger of wounding any of the larger vessels with this instrument.

Preobrashensky³⁷ emphasizes the fact that the lungs are not always at fault where there is an expectoration of blood. He points out that the blood, even when expectorated in considerable quantities may

come from the nose, pharynx or larynx. He reports sixteen cases of hemoptysis having their origin in the upper respiratory passages. In eleven the bleeding had its origin in the pharynx and naso-pharynx, three in the larynx and two in the trachea. He concludes that: 1. The origin of hemoptysis is more frequent in the upper respiratory passages than is commonly believed. 2. Most often the bleeding has its origin from some localized inflammatory area or from a dilated vein. 3. When a proper diagnosis is made the hemoptysis can be as a rule permanently cured. 4. The quantity of blood can not be taken as a criterion as to its origin as profuse bleeding may come from the pharynx.

Semon³⁸ calls attention to the confusion in the medical terminology of the acute septic inflammations of the throat and neck. He believes that the diseases which are now known as acute glossitis, of oedematous pharyngitis and laryngitis of acute oedema of the larynx, of abscess of the larynx of phlegmonous pharyngitis and laryngitis, or erysipelas of the larynx and Angina Ludovici, should be from an etiological point of view, classified under one heading, viz.: acute septic inflammations of the throat and neck, thereby greatly simplifying matters. The main symptom in all of the above mentioned diseases being the same—that is, inflammation with a large amount of oedema. This inflammation can be brought about by any of the various forms of staphylococci and streptococci, bacterium coli, the bacillus pyogenus foetidus, the tetraginus and others. The present terminology is based only on the particular location of the infection and the beginning of the process. He also calls attention to the seriousness of these cases, with their usually rapid and fatal termination. He advises a bacteriological diagnosis when possible, though owing to the rapid course of the process it is often not practical. He mentions two cases which were saved by the injection of streptococcus serum, which should always be given a trial as no danger can come from its use if the process be the result of some other infection. French³⁹ reports a case of acute septic inflammation of the throat and neck in which the edematous swellings were dispersed by the free application of 1-5000 adrenaline solution every hour. The case recovered.

Heuking⁴⁰ reports six cases of severe hemorrhage following tonsilotomy. In each instance he found that the hemorrhage had its origin in a wound on the posterior pharyngeal pillar. Heuking believes the findings throw a new light on the etiology of a large number of severe hemorrhages following the removal of the tonsils. He accounts for the frequent wounding of the pharyngeal pillar in that during the act of gagging a contraction of the palato-pharyngeal muscle occurs throwing the tonsil with the pillar forward, thus a por-

tion of the pillar is easily caught in the tonsillitome. He believes this accident is not as apt to occur when the knife or scissors are employed. After the hemorrhage is once established, the author claims that too much valuable time is lost in applying styptics when by simple digital compression at the site of the wound the bleeding can be promptly and effectively controlled. In only one of his cases was it necessary to continue the compression longer than an hour. The others ceased promptly in from 10 to 40 minutes.

Perugia⁴¹ reports a well developed case of carcinoma of the velum palati which disappeared under the action of radium. The mucous membrane recovered its normal appearance. According to Perugia the rays of radium act first on the cells of connective tissue and secondarily on the parenchymatous cells. On account of this special property the total disappearance of the carcinomatous cells is supposed to be effected.

There is still considerable difference of opinion as to whether a general anesthetic should be employed in the removal of tonsils and adenoids. In the majority of continental clinics no anesthetic is employed while in some, the bromide of ethyl is used. Ethyl chloride has recently been strongly advocated by Neunborn⁴² and Large⁴³. Murry⁴⁴ regards ethyl chloride as one of the best means of procuring anesthesia of from five to fifteen minutes in children of all ages. There are no bad effects. Very few deaths have occurred in children and none in infants. The chief danger lies in over stimulation of the respiratory centres.

Stovaine as a local anesthetic in nose and throat operations has been employed by Coakley⁴⁵. He sums up his experiences as follows:

1. That stovaine as a local anesthetic is apparently equal to cocaine.

2. That the time necessary for acquiring local anesthesia is that of cocaine.

3. That it apparently does not contract the nasal mucous membrane to so great an extent as do similar solutions of cocaine. This is at times a disadvantage, when the nasal passages are desired to be opened for more thorough inspection of the cavities; on the other hand, it is often times an advantage, as in snaring off redundant tissue, by not too greatly shrinking it, and therefore, making it more easy to remove.

4. Stovaine does not produce nearly so great a constriction in the pharynx as that which is produced by cocaine. In this respect it has a decided advantage over cocaine, especially in those patients to whom the symptoms of constriction with constant desire to hawk and remove a supposed foreign body are distressing.

6. Some of the patients have complained that solutions of stovaine are more bitter than similar solutions of cocaine.

7. We have seen no toxic effects following the use of stovaine; there have been no secondary headaches or feeling of lassitude after the local anesthetic effect of the drug has disappeared. I am also of the opinion that the secondary swelling of the mucous membrane following the use of stovaine, is less than that which occurs when cocaine is employed.

8. It is but fair to say that during this period when cocaine was employed there was no case of marked cocaineism. For the sake of comparison in all cases where there were two operations done on the same person, stovaine was used on the one side and cocaine solutions of the same strength were employed on the other. Careful questions were asked of each patient to determine which was the better anesthetic and which gave the least disagreeable symptoms.

The throat complications of typhoid fever are reviewed by Quinlan⁴⁶. He believes that in the treatment of these conditions tracheotomy offers many advantages over intubation in that the air current can be tapped by the former operation below the obstruction and the danger of forcing fragments of cartilage into the trachea is overcome. Again, the tube may rupture an abscess and flood the respiratory tract with pus which may provoke a septic pneumonia. He believes also that laryngitis occurring during the course of typhoid fever must always modify our prognosis. A continued hoarseness with slight dyspnea should at once demand an inspection of the larynx and trachea. A faulty movement of the laryngeal muscles should require internal and local medication. Marked dyspnea should at once call for operative surgical interference.

Among the premonitory symptoms of laryngeal tuberculosis as given by Skillern⁴⁷ are a peculiar sticking sensation below the region of the larynx, sensations of oppression or swollen throat, scratching and burning, sometimes actual pain. The cough is not so violent as that from the lungs. There is intermittent and recurrent dyspnea, Huskiness and vocal inequalities. Lancinating pains shooting to one or both ears are suggestive symptoms. Among the premonitory findings are: 1. Diffuse hyperaemia of the entire larynx. 2. Anaemia which may be limited to the ventricular bands or mucous membrane covering the arytenoids. 3. Untoward conspicuity of superficial blood vessels of the mucosa. 4. Apparently healthy larynx bathed in a gray, ropy, transparent secretion. The treatment of laryngeal tuberculosis by means of direct sunlight has received considerable attention. Kunwold⁴⁸ and Jessen⁴⁹ report good success. According to the former the infiltrations were influenced most by the sun's rays

though ulcerations were healed after repeated exposures. In cases with oedema Kunwold believes the rays are contraindicated, whereas Jessen found the sun's rays action beneficial but the exposures should be of short duration.

Dempel⁵⁰ believes phenosalyl to be a very valuable remedy in laryngeal tuberculosis. Stern⁵¹ believes formalin to be one of the best means possible for treating tuberculosis of the larynx. Laryngotomy in tuberculosis of the larynx is discussed by Hansberg⁵². He calls attention to the work of Blumenfeld who was able to gather only 54 cases from the literature. The results in these cases were by no means discouraging as a complete cure was obtained in 15 or 28 per cent. of all the cases operated on while there was a marked improvement in twelve others. In nine there was no improvement. Hansberg operated on three cases with a complete cure in all. He lays great stress on the selection of cases. Only those cases should be selected in which the general condition is comparatively good, with little or no lung involvement. The process in the larynx must not show a tendency to rapid spreading. Hansberg does the operation in two steps. The tracheotomy is done under cocaine anesthesia and an interval of eight days is allowed to elapse in order to accustom the patient to the changed conditions. The larynx is then cocaineized from the tracheotomy wound and after a division of the cartilage, the diseased tissue is removed. The fact that this operation can be done under a local anesthetic greatly modifies the prognosis. Barth⁵³ believes that even in severe cases of tubercular laryngitis good results may be obtained by the radical removal of all the diseased portions, even to the extent of a total extirpation of the larynx.

Can tuberculosis of the larynx be looked upon as an indication for the artificial interruption of pregnancy.

Kuttern's⁵⁴ observations of 100 cases have lead to the following conclusions:

1. Tuberculosis of the larynx, beginning during pregnancy, is not of frequent occurrence.
2. Pregnancy does not often occur when there is a tuberculosis of the larynx.
3. Primipara are as often affected as multipara.
4. The occurrence of a diffuse tuberculosis of the larynx during pregnancy gives a bad prognosis for both mother and child. Of the 100 cases only seven of the mothers lived, while of the seventy children forty-two died soon after birth.
5. A circumscript tuberculosis of the larynx gives a good prognosis. (Of the four cases reported all withstood the pregnancy).

6. These cases should be treated both locally and generally, but as a rule very little can be accomplished.

7. Tracheotomy is always to be made in case of severe dyspnea. At time of delivery preparation should always be made to do a tracheotomy if the occasion should arise.

8. The unfavorable prognosis which laryngeal tuberculosis gives during pregnancy for both mother and child is sufficient reason for interrupting the pregnancy.

9. The production of an abortion during the first half of pregnancy in selected cases *has* given good results, while during the last half only poor results have been obtained.

Considerable advance in both bronchoscopy and esophagoscopy has been made. A number of new instruments have been devised by Killian⁵⁵ Ingalls⁵⁶ and Jackson⁵⁷ which overcome many obstacles in both examination and treatment. The report of foreign bodies removed from the bronchi by means of upper bronchoscopy are no longer rarities. The book written by Starck on esophagoscopy which appeared last summer will no doubt dispel the prejudice which has always existed against the direct method of examining the esophagus.

Local anesthesia of the external auditory canal and middle ear by hypodermic injection of solution of cocaine and adrenaline have been reported by Von Eichen⁵⁸ and Laval.⁵⁹ The latter employs a half of one per cent. solution of cocaine in the shape of the Braun cocaine suprarenin tablet, dissolved in one ccm. of distilled water. He anesthetizes the sensory nerves, (a branch of the auriculo-temporal, a branch of the vagus and a branch of the auricularis magnus) before their distribution. In locating the nerves there is danger of injuring the temporal artery, auriculo-temporal nerve, capsule of the temporomaxillary joint and parotid gland. If the mouth be opened wide, the first named two organs sink, the capsule of the joint is stretched and the parotid gland is pushed forward. The needle is inserted $1\frac{1}{2}$ cm. deep, $1\frac{1}{2}$ cm. in front of the tragus and on a level with the floor of the auditory canal. Then pull ear gently forward and insert the needle to a depth of 1 cm. on a level with the canal and just behind the fold of the ear between the bone and the cartilage. One-half ccm. of the one per cent. solution is all that is required. The anesthesia begins in five minutes and lasts about twenty minutes. The method was used successfully in operations for furunculosis, ossiculectomies and for performing paracentesis. Schild⁶⁰ describes a new method of ethyl chloride anesthesia in aural surgery. He has a new metal container with a nozzle two inches long. He begins with a very small spray and gradually increases the volume until a feeling of coolness is felt in the ear. The evaporation is facilitated by a jet of air from a Politzer bag.

He uses this anesthesia in furunculosis, in performing paracentesis and in extracting polypi; also as a preliminary to the application of Lucae's pressure probe.

Bryant⁶¹ has described a new method of making quantitative tests of the hearing. He has invented a phonographic accumulator. This instrument consists of a phonograph so constructed that the amount of sound reaching the patient can be accurately gauged and at the same time be under control. Bryant believes it provides a standard for the comparison of tests equal to those used by the ophthalmologists.

The radical treatment of acute otitis media is outlined by Dubar⁶². He divides the subject into media otitis of the new born in children and in adults. The difficulty of diagnosing the trouble in very young children is pointed out, the diagnosis often not being made until pus is seen in the canal. The infection coming through the eustachian tube, he advises the antiseptic cleansing of the mouth and naso pharynx at first signs of sickness, syringing morning and evening, a few drops of the following mixture into each nostril: Sterilized olive oil, 60 grammes; resorcin, 2 grammes. The child should be laid flat on a table and held by any assistant. He advises also placing in each ear morning and evening a pledget of absorbent cotton soaked in the following mixture, previously warmed: Glycerine, 40 grammes; resorcin, 1 gramme; acid phenique, 0.25 centigrammes. This practice being without danger should be persisted in during the entire acute stage of the disease. In the case of children the same technique and principles are followed, varying the proportion of the antiseptics to suit the age of the child and the cause of the otitis. In the case of adults he introduces into each nostril, morning and evening a piece as large as a pea of the following pomade: Vaseline, 20; lanoline, 10; anitol, 1; menthol, 0.30; stovaine, 0.20; and the patient is told to blow his nose slightly. The following mixture, luke warm, is recommended in 5 to 10 drop doses, to be dropped into the affected ear: Glycerine, 40; resorcin, acid phenique aa q. 1. The indication for paracentesis are continuous and increasing pain, deafness, fever, evidence of brain involvement and bad general condition. He is an advocate of the dry treatment.

The treatment of vertigo and deafness by Babinski's lumbar puncture method has been tested by Tretop⁶³. The functional results have been encouraging. The vertigo was regularly influenced, generally completely disappearing, the tinnitus following a similar course. He obtained without any doubt unexpected results in three cases in a considerable improvement in the hearing. Tretop thinks otology about to be enriched with a new procedure, which in certain definite cases may cause vertigo and tinnitus to disappear and sometimes to even

improve deafness materially. Lombard and Caboche⁶⁴ have had no absolute cures with this method, but an amelioration of vertiginous symptoms. In one case headache followed which had not disappeared two and one-half months after the operation.

The application of collodion to the membrane timpani is advised by Bryant⁶⁵ in relaxed posterior upper segment and laxity of the malleal ligaments, especially with the malleo-incudo-tympanic. The collodion is painted on the drum head, the area to be covered depending upon the conditions. If the ligaments are relaxed the whole upper half of the drum should be coated. When the relaxed area is confined to the upper segment, the collodion should be applied only to this region. The amount of collodion should be carefully gauged. Seriously inconveniencing the patient or causing any damage to the drum head should be avoided. This form of treatment offers an encouraging prognosis.

Haike⁶⁶ examined five cases of tuberculosis of the ear in infants. In two of the cases the possibility of the sputum having passed up the eustachian tube and infected the ear could not be excluded, but in the other cases there was a primary involvement of the ear, the tube itself being the seat of the disease. Hennici⁶⁷ concludes from the findings in 19 mastoid operations in children, from two months to seven years of age, that 1. Tuberculosis is a relatively frequent disease in childhood, about one-fifth of all cases of mastoiditis being tuberculous. 2. Tuberculosis of the mastoid, in childhood is in the majority of cases, a primary tubercular osteitis, that is, the infection is caused by the blood. 3. A primary tubercular mastoiditis is more frequent than a secondary one following a tuberculous middle ear. 4. Tuberculosis of the mastoid in childhood is more often a purely local and benign affection. 5. Usually all of the diseased tissue can be removed by a simple operation. In only a few cases will the radical mastoid operation be necessary. 6. A positive diagnosis of tuberculosis of the mastoid can rarely be made by the macroscopic appearance at the time of the operation. The microscope will have to decide in the great majority of cases. 7. Facial paralysis is a comparatively rare complication in tuberculosis in children. When present it shows an extensive involvement. 8. Tuberculosis of the pharyngeal tonsil bears no special relation to tuberculosis of the mastoid.

Choice of selection in mastoid operations is discussed by Kuyke⁶⁸. He has divided the cases into the following groups:

Group 1. Features obtaining in mastoiditis as a complication or a sequel of exanthemata.

Group 2. Features obtaining in mastoiditis as a complication or sequel of influenza.

Group 3. Features obtaining in mastoiditis as occurring in the course of chronic suppurative otitis media.

Delay in operation in first two groups should not be permitted beyond from 36 to 48 hours, if profuse discharge from the middle ear by incision or rupture with ice to the mastoid and general antiphlogistic measures do not markedly improve the condition. Cases showing infection with streptococci while at times lie in abeyance should not be treated tentatively on appearance of pronounced symptoms of aggravated pain about the ear, fresh rise of temperature, lessened or suppressed discharge.

Operation in cases of slow, painful recovery. Cases of chronic otitis media with constant otorrhea, neuralgic pains over the part, lowered general health with nervous irritability, perhaps vertigo, should be operated.

A case of otitic epilepsy is reported by Randall⁶⁹. The patient was a boy of eight years who had received a drenching with a hose with a penetration of the water into the left ear in August, 1904, followed by acute inflammation. As the discharge slackened epileptiform attacks, sometimes four or five a day began about September 1st. These attacks occurred almost daily with spells of unconsciousness lasting about 60 seconds. September 22 he was operated on; tympanic exenteration was done. The epileptiform attacks continued till December 1st, when a complete exenteration of the mastoid was done. The sinus was laid bare and the tegmen removed from the middle ear and the antrum with negative findings. Following the second operation the attacks steadily diminished in severity and on April 14 had disappeared entirely.

According to Hinsberg⁷⁰ a diffuse purulent meningitis is no longer a contra indication for operative interference. He believes that an exploratory opening when carefully done does not endanger the life of the patient.

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DERMATOLOGY AND SYPHILIS.

IN CHARGE OF

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There is no disease of the skin about which there is so much confusion, speaking in the broadest sense, as there is about that of eczema. It is of course the most frequent of all diseases of the skin; there is no doubt that there is included in the present term of eczema many entities deserving separation from the present group. Many years ago the writer attempted to divide the eczemas into etiological groups. Since then years of experience have taught him his earlier error and, speaking from an etiological standpoint, he is at present as much at sea as to the causes of eczema as he was then certain of his knowledge of that part of the subject.

Arthur J. Hall¹ has attempted an "Inquiry into the Etiology of Infantile Eczema." He has studied 60 cases in the most critical manner and the conclusions at which he arrives are somewhat startling and contradictory to our present knowledge of this form of the disease. He gives in this article a history of infantile eczema and quotes the opinion of various authorities as to its cause, and exposes these presumptive etiological factors to a critical, clinical examination during the course of his 60 cases. We may summarize the conclusions of this valuable article as follows: (a) Sex: of the 60 cases 47 were males, 13 females. (b) Age of mother: below 25 years, 16 cases, above 25 years but 29 cases. (c) Number and relative age of other children: in over 50 per cent. of the cases the affected child was either a second or third born, in only 14 per cent. it was the first-born, leaving 86 per cent. in which the child was other than first-born. This shows that as a rule eczematous infants are not the children of very large families. This point is of importance as very frequent childbearing not only tends to exhaust the mother and thus affects the milk supply but also to increase her domestic duties and hence to neglect the care of the children. (d) Evidence of skin disease in the mothers: in 13 per cent. there was a definite outbreak of eczema. In 31.5 per cent. there was evidence of seborrhoea, in 11 per cent. vague history of skin disease, in 44.5 per cent. no past or present skin disease. (e) Evidence of skin disease past or present in other children: there was no skin disease at all in 90 per cent. of the cases and this fact seems to point to the non-infectiousness of the form of eczema under consideration. (f)

Age of children when eruption first appeared: one to four months, 78.3 per cent., five to twelve months, 21 per cent. (g) Situation of first appearance of eruption: the eruption first appeared on the cheeks, forehead and temples in 32 cases, on the scalp or behind the ears in 25 cases, elsewhere in 3 cases. The large percentage of cases in which the eruption first appeared on the face and head is a very striking feature. (h) Time of year in which the eruption first appeared: The largest number of cases in any single month is in January, next largest in October, whereas no cases occurred in June. There seems to be a very definite drop in the number of cases during the warmer months and a corresponding increase during the colder months. The writer calls particular attention to the fact that those months in which all kinds of gastro-enteric affections are particularly prevalent in infants are the very months in which the smallest percentage of cases occurred. This is very important in the supposed relationship between digestive disturbances and infantile eczema. (i) Nature of food at the time the rash first appeared: breast-fed only, 33 cases; breast and other things, 18 cases; bottle-fed entirely 8 cases. As regards the food other than the breast in the 18 cases, there were patent foods in 2 cases, crusts in 4, rusk or biscuit in 7, sago in 1 case, uncertain in 4 cases. (j) The relationship of vaccination to infantile eczema: cases in which the rash preceded vaccination, 46; cases in which vaccination preceded the rash 14. (k) Evidence as to dentition: dentition preceded the rash in 7 cases, rash preceded first dentition in 49 cases. The author says under this head that we may eliminate dentition as an etiologic factor in infantile eczema and feel quite clear that when the two coincide it is a simple chance as regards their relationship. (l) Evidence of gastro-intestinal disturbances: investigation was made on this point in 52 cases. There was evidence of malnutrition in 8, none whatever in 44. There was evident rickets in 8, no rickets in 28, doubtful in 15. There was vomiting in 4, absence of vomiting in 49. There was diarrhoea in 10 cases, absent in 45. His 60 cases showed a quite remarkable exemption from gastro-intestinal trouble. (m) Character and distribution of the eruption: The eruption varied according to the duration, cleanliness and amount of secondary infection, etc. The distribution was frequently extensive and the symmetry of the eruption was marked.

It can be readily gleaned from the resume of this extensive work that the principal points brought out are the evident relationship between cold and exposure in the etiology of these cases; that gastro-intestinal disturbances certainly do not play the part usually considered; and as other members of the family had no evident skin disease, that

infantile eczema is not, in its incipency at any rate, of an infectious character.

Henry W. Stelwagon² discussed before the International Dermatological Congress "Some Observations Concerning Palmar Eruptions." He speaks particularly of the chronic dry scaly fissured eczema and syphilis of the palmar aspects of the hands in which the eruption seems wholly independent of recognizable agencies. They are rarely seen under 25, and seldom under 30 years of age. There are frequently cardiac or renal symptoms associated with anemia and the patients usually lead a sedentary life. He points out the difficulty of a differential diagnosis between eczema and the scaly conditions of the palmar surfaces. If the condition is syphilitic the author recommends hypodermic injections of mercury in large doses as a local remedy. A mild mercurial course often proves useless.

PSORIASIS. A. Camper³ brings forward a new organism which he finds in the scales of psoriasis. Scrapings of the epidermis after the removal of the superficial scales were placed in 1—1000 formalin and distilled water, then placed in salicylic albumin, then in absolute alcohol for twenty minutes after which they were stained with borated methyl blue, washed in plain water cleared and mounted. Sections of the skin were similarly treated. In these sections so treated were found round, but commonly oval bodies measuring $\frac{1}{2}$ to 1 mm. situated on the epithelial cells. The body was sometimes double and contained one or more nuclei. These bodies are not found in other forms of skin disease and are similar to Donovan-Leishman bodies.

DERMOGRAPHIA. Stursberg⁴ examined 90 men, 84 women and 70 children in regard to the response of their skin to a line drawn with moderate pressure and moderately quickly along the skin with the rounded end of a pencil holder. A stroke was made on the skin of the chest and the upper part of the back and the interval before redness appeared and before it disappeared was noted. The skin became red in nearly every instance. The redness was slightly more pronounced in patients with neuroses than in others, but the average was surpassed in some of the patients who were free from neurotic manifestations. Stursberg concludes, therefore, that dermographia has no appreciable diagnostic significance.

A rather curious instance is reported by Ward⁵ of a woman of 47 upon whom, while working in the garden under the sunlight there appeared on both arms and the back of the neck markedly elevated patches and streaks with severe itching and burning. Similar eruptions appeared whenever she was exposed to the sun's rays, appearing on those portions of the body most exposed. The eruption would disappear a short time after coming from under this influence but

would reappear upon similar exposure. The x-rays did not produce these results. Dr. Ward remarks that heat alone does not seem to be responsible for this eruption for the patient can sit before a fire without disturbance.

PEMPHIGUS. The etiology of true pemphigus is unknown and any light that may be thrown upon it through the detailed study of a case is always of value. Since we consider pemphigus an eruption consisting of bullae without an areola, we have a rather rare entity. Pellagette's⁶ case seems to answer this description. The man died and was conscious until an hour before death. Post mortem findings were as follows: Spinal cord, heart, pancreas, suprarenal capsules and lymphatic glands were normal, the brain, spleen and stomach congested. There was congestion in the lungs and hemorrhages in the visceral pleura. The renal pyramids were congested and the cortex swollen and granular. The medulla of the femur was abnormally hard and reddish-grey. The title of this work is, "The Alterations in the Bone Marrow in Pemphigus," and from study of this marrow the author found that of the white cells 75 per cent consisted of large mononuclear cells with a homogenous protoplasm and the nucleus poor in chromatin, without granules in basophile groundwork. Twelve per cent. of the cells were eosinophiles, 7 per cent. small lymphocytes. Altogether the polynuclear cells did not exceed 5 per cent. The changes were most marked in the periphery of the medulla.

OPSONINS. The staphylococcus albus is an important agent in the symptomatology of all skin diseases. It is an organism possibly manufacturing toxins with various chemical affinities and action. As skin diseases are more or less exposed to infection by this organism its pathological action must always be considered and through the various chemical affinities that its toxins may exert, the symptoms of these diseases often depend upon its action. G. T. Weston⁷ has performed some rather interesting experiments on "The Influence of Potassium Iodide on the Resistance of Blood Fluids to Staphylococcus Albus." The frequent appearance in iodism of a pustular eruption was the basis of his experiments. He wished to see if iodine had any influence over the serum in reducing its power over bacteria. Along the idea of opsonins as pointed out by Hektoen⁸ and Ruediger,⁹ the opsonic index has been shown to be a constant factor in health, except that in women it is markedly lowered during menstruation. In disease, however, very remarkable variations have been shown to occur. The author worked to answer the following questions: (a) Does the administration of potassium iodide produce a fall in the opsonic index to staphylococcus? (b) Has a person suffering

from a pustular iodide eruption an abnormally low opsonic index? (c) Does a person's opsonic index rise when the drug is stopped? Experiments were carried out in a very careful and scientific manner and proved to the author conclusively that the administration of potassium iodide has no influence on the opsonic index of the serum and, therefore, that iodine is not necessarily associated with a low opsonic index.

LICHEN SPINULOSUS. Under the name of lichen spinulosus there is an affection of the skin well known in England which occurs in children and is characterized by the appearance of fine filiform spines arranged in groups and distributed more or less symmetrically over the trunk and limbs. The spines arise from the sebaceous follicles, the mouths of which are slightly raised forming spine-like papillations, the skin slightly red. It is accompanied by itching. There is no disturbance of the general health.

Adamson¹⁰ has made a very exhaustive study of this disease, also Felix Lewendowsky¹¹. The two authors differ in their histological findings. The former says that the pathological process is essentially a hyperkeratosis of the follicle and that perifollicular inflammation is absent or little marked, while the latter considers the eruption an inflammatory affection of the follicles and that the spines are of secondary formation. Adamson believes that there is some etiological connection between lichen spinulosus and lichen planus in the adult while in children there seems to be no such connection. He furthermore considers that the acne cornea of Hardy and Guibot is the same disorder. Thus several distinct conditions are brought under one head, which is always a great stride in the progress of any branch of medicine.

DERMATITIS COCCIDICIDES. At the present date the field of protozoic diseases seems to be enlarging rapidly and any information on protozoic and coccidiform parasites is of great value. S. B. Walbach¹² has contributed a study "Upon the Life Cycle of the Organism of Dermatitis Coccidicides." The organism was obtained from a case of Dr. W. P. Bowles, the patient having probably contracted his disease in California where the other cases have come from. From the tissue removed at operation cultures were obtained which seemed identical in their resemblance to young colonies of *oidium lactis* upon glycerine agar. Microscopically these cultures were composed of a radiating mass of coarse, branching, occasionally segmented amicilia with a distinct membrane. Very old colonies contained spherical bodies resembling those in the tissues although no budding was shown. In guinea pigs and rabbits lesions were produced very similar to those of tuberculosis in which were found

spherical bodies undergoing endogenous reproduction. Segmentation of the spheres with the finely granular protoplasm commenced by peripheral division of the protoplasm which, extending inwards, results in a mass of polyhedral segments separated from one another by clear spaces. These segments finally became spherical or oval and were liberated by the breaking of the capsule. The writer says that the organism cannot be a blastomyces, though most closely resembling the oidium type, is excluded by the absence of budding.

Ophuls¹³ adds three new cases to the ten of dermatitis coccidioides with a resume or synopsis of all the cases to date. He speaks of the organism as a fungus and cites the facts as above given by Walbach. It is very probable from the observation of many authors that the dermal symptoms of this disease are secondary to the visceral involvement. This may possibly be true also in blastomycitic dermatitis.

On the other hand, Claude A. Smith¹⁴ has proven conclusively that uncinariasis enters the system through the skin. He showed experimentally that the four-days-old larvae of the uncinaria Americana when mixed with soil and applied to the skin produced a local dermatitis, the so-called ground itch, and that after several weeks the eggs of these organisms were found in the stools. The eruption produced by the experimental application of these larvae with dirt was in the form of a dermatitis with vesiculation and quite a marked degree of swelling without particular tenderness. Five or six days after inoculation the swelling began to subside and was practically well upon the ninth day. The experiments of Dr. Smith are important in differentiating this condition upon the feet and extremities of those who inhabit the districts where this organism is prevalent.

FORDYCE'S DISEASE. This interesting condition has been studied by C. J. White¹⁵ both clinically and histologically. The histological findings in Dr. White's cases do not agree with recent writers upon this subject. The essential changes seem to lie in the epidermis and consist of acanthosis, edema, and parakeratosis, conditions originally found by Fordyce, the first investigator of the disease. Clinically White's cases had a persistent dyspepsia and a concomitant seborrhoeic condition which would tend to confirm the pathological finding of those writers who call the disease acne rosacea of the mucous membranes. Pathologically, however, the sections contradict this view absolutely as the sebaceous glands present lie beyond the boundaries of the lesions proper. In this connection it may be well to remark that Warren Allen¹⁶ highly recommends the high frequency spark for this condition of the lips. He says that two or three sittings usually suffice and that the pain is slight. He uses a contact spark of

about $\frac{1}{8}$ of an inch, or one which causes almost at once a marked whitening of the surrounding pink of the lip.

ACRODERMATITIS. Carl Herxheimer¹⁷ again brings forward his "Acrodermatitis Atrophicans Chronica" as a distinct entity and not to be confused with or considered as identical with scleroderma. Confusion can only exist in the atrophic stage as in the inflammatory stage the diagnosis offers no difficulty. Scleroderma may begin with hypertrophy, yet it is very different from that of acrodermatitis. Sclerodermic skin is hard while acrodermic skin is soft and loose over the tissues. Scleroderma may affect any part of the tissues but acrodermatitis cannot as it begins on the extensor side of the extremities and ascends. There is always a fresher, more acutely inflammatory look about acrodermatitis than in any stage of scleroderma.

EXANTHEMATA. Hecktoen¹⁸ reviews the work done on "Experimental Measles," and cites two experiments done by himself. The blood of a patient in the fourth day of measles was withdrawn from a vein, injected into ascitis broth and placed in an incubator twenty-four hours. From a flask of 50 c. c. inoculated with 3 c. c. of blood and kept in an incubator twenty-four hours and which had remained sterile, there was injected under the skin of a healthy man 4 c. c. of this fluid. This man had had no disease resembling measles. There was no local reaction. On the thirteenth day the temperature rose to 101° and on the fourteenth day a red, papular eruption appeared. The disease ran an uneventful course toward recovery with the usual desquamation. There were no respiratory symptoms or catarrh. In the second case the blood was withdrawn from a patient with the disease thirty hours old and injected into broth in a similar manner as above and thereafter injected into the back of a man. This second case had catarrhal symptoms with eruption and presented more of the typical symptoms of measles than the first. From these experiments Hektoen concludes that the virus of measles is in the blood of the patients and that it retains its virulence for at least twenty-four hours under the conditions above enumerated.

VARIOLA. W. T. Howard, Jr., and R. G. Perkins¹⁹ conclude from the vaccination of the cornea of the rabbit that the primary cytoplasmic stage of the organism occurs as in that described by Tyzzer, and that in human vaccinia the épidermic changes correspond to the vesicular change of variola, and that the changes in the cornea are far more intense. The secondary changes of the organism, as described by Councilman, do not occur in human vaccinia; they grant, however, that the group of cytoplasmic and nuclear bodies, described by Councilman and others, are parasites causing these diseases. It seems that the lower animals inhibit their sexual

cycle, but admit that there are sexual cycles, which give rise to an immunity in man from both cycles.

James Ewing²⁰ in "The Study of the Structure of Vaccine Bodies in Isolated Cells", as described by various authors as being a form of parasite, has used the Klatsch preparations, which have seemed to prove a method of great value. He says that some doubt must remain as to the nature of these bodies as a specific form of degeneration is a frequent feature of infectious processes. Ewing has been unable to find any agent which produces the specific changes as seen in vaccinia and variola, therefore his minute studies, although throwing much light upon the structure of these bodies, does not prove their true nature.

W. E. de Korte²¹ studied the contents of a smallpox vesicle in hanging-drop preparations. He concludes from these observations and culture experiments, that the peculiar bodies seen are protozoa, and says, that they can be grown in pure culture on a suitable medium.

R. L. Thompson,²² has contributed a very rapid and unique method of differential diagnosis in smallpox. Relying upon the specific changes seen in the epidermis as being characteristic of vaccinia and variola, he snips off the top of the vesicle and submits it to a rapid method of paraffine imbedding, as described by Henke and Zeller, and, after cutting and mounting in a special manner the sections are stained for examination. By this method a laboratory or histological examination of a suspected piece of skin can be made in three hours. This method is well worth studying and should be added to the technic of those who are called upon to make rapid diagnosis of obscure eruptions suspected of being smallpox.

TUBERCULOSIS. H. G. Anthony²³ reports a peculiar case of "Follicles of the Skin and Conjunctiva." Such an involvement of the eye is exceedingly rare, although one can see from the pathology of the affection that the eye cells and other organs of the body may be thus involved in tuberculous processes.

Arthur Witfield²⁴ contends in an article upon "A Further contribution to our knowledge of Erythema Induratum" that there is a form of disease indistinguishable from Bazin's disease, by ordinary clinical methods, not tuberculous in nature, and calls attention to the value of treatment by sterilized tuberculin, thus echoing in the latter respect the opinion of Sir T. McCall-Anderson,²⁵ who in "A Plea for the more General use of Tuberculin by the Profession," emphasizes the great value that can be obtained by the use of this remedy in tuberculous affections of the skin. He says, "like most every powerful remedy it is useless, or even hurtful, if not administered with the requisite knowledge and skill." Having employed it continually,

since its discovery, he has come to know the remedy pretty well, and says, that in many cases in which he has used it, the manifestations of the disease have entirely disappeared. He also places great value upon it in the differential diagnosis of tuberculous diseases.

LEPROSY. I. Dyer,²⁶ who is an earnest worker in this field, takes a very rational view upon the subject of "The Cure of Leprosy." He has worked for years in New Orleans, and has virtually had charge of the lazarette. He believes that crude chaulmoogra oil is more a specific for leprosy than any other remedy; but a careful diet, hygiene and baths together with tonics should also be used. T. Bey,²⁷ gives the chaulmoogra oil by subcutaneous injections in doses of five grams. In using the injections he has not seen pulmonary embolism, or any other symptom sufficient to cause him to abolish the method. Aseptic care, however, must be taken, and the injection should not be made near a very large vessel.

The most interesting treatment of leprosy mentioned is that introduced by H. B. Wilkinson²⁸ of the United States navy, who in an address delivered before the Manilla Medical Society, in October last, spoke upon "Some Observations on Leprosy in the Philippine Islands, with an Account of its Treatment with the X-Ray." He reports some marvelous results as occurring under this method of treatment, and is inclined to believe that the cure takes place by the lepro-bacilli in the lesions being killed, and their bodies absorbed by the system, thereby producing an immunity against the living organism. In support of his theory he states, first: The treatment of one leprous spot on a patient produces improvement in spots at a distance from the one actually treated. Second: The cure in the distant spots seem to progress parallel to, and be just as complete as that in the one treated. Third: The best results seem to be obtained only when treatment is pushed to the point of killing, or beginning to kill, the tissues, which would also probably be to the point of killing the organism. The best results are obtained where there is a mass of leprous tissue for exposure.

THERAPY. The therapeutic use of the x-ray during the previous year has not been extended. McMaster²⁹ and others report beneficial results in the treatment of sarcoma, and W. A. Pusey³⁰ after three years' use of the x-rays occupies virtually the same position that he formerly did.

C. W. Allen³¹ speaks favorably of the high-frequency spark in Fordyce's disease of the lips.

Kreibich³² believes that certain skin affections are sympathetic reflex phenomena. He therefore entitles an article "The Cause and Treatment of Cutaneous Affections," in which he tries to trace, under

this theory, the sensory stimuli which cause the pathologic reaction in the form of disease. Under this class he names gangrene, urticaria, prurigo, decubitus, etc. To treat these affections the source of the disease must be attacked and the reflex excitability reduced. He places great stress upon arsenic in the form of Fowler's solution and peppermint water, equal parts, and uses it in gradually increasing doses.

Malcolm Morris³³ remarks that the general principles of the treatment of skin diseases may be expressed in the single word *reaction*, and without reaction there is no cure. He means by reaction a produced inflammation of various degrees, therefore his methods of treatment are directed to the production of this effect. Reaction may be produced by local measures, which upon general principles is better; and by the use of various internal agents.

G. McGowan³⁴ contributes a splendid article upon "The Use of Adrenalin Chloride in Hemorrhages and Angio-Neurotic Diseases of the Skin." He has obtained brilliant results from the use of this agent in ten drop doses in purpura, urticaria and erythema-multiforme.

The results of McGowan coincide with those of the writer of this review, who in 1903 published an account of the excellent results that may be obtained from suprarenal gland in various angio-neurotic diseases.

There is no disease with which the general practitioner, or the dermatologist has to deal that is more stubborn to relieve than that of pruritus ani. Ball³⁵ has introduced an operative procedure for the relief of this condition which seems to be of great value. The details of this operation it is unnecessary to give here yet in inveterate cases the unique method of Ball should be borne in mind.

Two very valuable formulas for psoriasis appeared during the year, that of Dreuw and Ashmead³⁶. Dreuw's is as follows:

Acid salycillic, $2\frac{1}{2}$ drams.

Chrysarobin, 5 drams.

Ol. rusci, 5 drams.

Sapo. virid., $6\frac{1}{2}$ drams.

Vaseline, $6\frac{1}{2}$ drams.

The ointment is applied by a stiff brush to the affected areas for from four to six days. After it is dry a little starch may be sprinkled over it. On the fifth or sixth day the patient starts taking hot baths daily, for from one to three days, and after the bath vaseline is well rubbed into the affected areas from one to three times a day. This course of treatment, which embraces a period of eight days may be repeated several times, according to the severity of the disease; but, as

a rule, psoriasis patches disappear soon after the first treatment.

Ashmead³⁷ has introduced a very valuable agent which is used in psoriasis of the nails, namely: "mesotan," which is rubbed into and under the nail several times a day. It has the additional advantage of not staining the skin.

RINGWORM. The treatment of ringworm of the scalp by the use of the x-rays has almost substituted that of other methods³⁸, it however, must be used with exceeding care as dangerous results may follow.

SYPHILIS. R. W. Taylor³⁹, in discussing "The Prognosis of Syphilis," reminds us that we have two elements to contend with: namely, new cells and a diffusable poison, and that the benignity or severity of syphilis is determined by the condition of the patient. He believes that some enjoy possible immunity and offer such resistance to the poison that slight impression is made upon the tissues. Extra-genital and genital infections do not differ materially in the result, and course of the disease. The greater changes to be dreaded are those in the blood vessels which menace the patient in the latter years of his life. Early efficient treatment is the best answer in the prognosis.

J. Nevins Hyde⁴⁰, in speaking of "Syphilis as Related to the Problems of Longevity," says, the expectation of life upon acquisition of syphilis is based in part only upon the tendencies to the morbid process. Such expectation is in large measure affected by the inherited tendencies, the habits of life and the environment of the individual, and that they are better for women than for men by reason of the relative placidity of existence of the former.

Etiology. Almost every year a candidate in the form of some micro-organism is introduced as the probable cause of syphilis. The candidacy has heretofore been short lived. However, the latest, the spirochaeta pallida is winning so many loyal contributors that there has been a decided stir in the scientific world over this parasite.

T. Sherman, in the *Scottish Medical and Surgical Journal*, September, 1905; *Journal Cutaneous Diseases*, October, 1905, gives such a clear and concise review of the spirochaeta pallida in syphilis that we give it here almost in full.

The credit for the discovery lies with Schaudinn and Hoffman⁴¹, whose first paper appeared in the *Arbeiten aus dem kaiserlichen Gesundheitsamte*. Later they gave fuller details in the *Deutsche med. Wochensh*⁴², and *Berliner klin. Wochensh* (⁴³, , a, and b), and from these papers the following description is compounded: The authors draw attention to micro-organisms of the genus spirochaete, which they have found in primary and secondary syphilitic lesions, not only at their surface, but also in their deeper parts, and in the cor-

responding lymphatic glands. They saw them living they remain alive for several hours in physiological salt solution—and also in smears from the tissue juice, fixed in absolute alcohol, and stained by a modification of Giemsa's method.

Schaudinn holds that spirochaetes are related rather to the protozoa than to the bacteria, and hence must be clearly distinguished from the spirilla.

He describes two varieties, one found only in syphilitic lesions, the other saprophytic in nature, and constantly met with in stagnant secretions, such as occur about the genitals.

The former, which he names *spirochaeta pallida*, is extremely delicate, very weakly refractile, vigorously motile; stained with difficulty and seen with difficulty, by very high powers of the microscope—1-12 oil immersion objective, with medium to No. 8 ocular being required. It is long, very thin and filamentous, spiral or cork-screw shaped, with pointed ends. In length it varies from 4 to 10 μ .; its breadth is difficult to gauge, being at most about 0.25 μ ., the turns in the spiral number 6 to 14, averaging 8 to 10. They are not only numerous, but very narrow, regular, and deep. Some writers describe a nucleus, but this fact is not yet absolutely proved. It progresses by rotating on its long axis, and when at rest it shows undulatory movements in its whole length, suggestive of the play of a vibratile membrane.

The second he names *spirochaeta refringens*. It is larger, refractile, the turns of the spiral flatter, wider, and more wavy or undulating than cork-screw shaped. It stains well with Giemsa's agent.

In addition to the difference in refractile power and general configuration the *spirochaeta pallida* (*spirochaeta obermeireri*, *ansernia*, *Ziemanni*, *buccalis*, *refringens*, etc.) differs in its extraordinary slight colorability with all stains that can be used for its detection. Moreover, the worker may have to spend at least an hour over a smear before a *spirochaeta pallida* rewards his patient search.

Method. Hard sores were excised, cut into from below, the fluid expressed, and smears made, or groin glands were punctured with a hypodermic syringe and the small amount of fluid so obtained was treated similarly. It is known that the fluid from these indolent glands is infective (v. Rinecker and Bumm⁴⁵), hence it was hoped that its examination would disclose the cause of syphilis.

In their first paper⁴¹ Schaudinn and Hoffman report that they found *spirochaeta pallida* in the surface lesions in 7 cases of uncomplicated primary and secondary syphilis, and in 4 out of 5 cases of syphilis with complications, in 3 of which it was associated with *spirochaeta refringens*.

In 8 cases of undoubted syphilis⁴² the spirochaeta pallida was demonstrated in 6 smears from excised glands or in fluid obtained by puncture. In four cases complicated with gonorrhoea, papillomata, soft sore, and balanitis, in which, however, the glands had the characters of the syphilitic swelling, these contained spirochaeta pallida alone.

Schaudinn also found the spirochaetes in blood from the spleen obtained during life on the day previous to the appearance of the rosular rash.

No spirochaetes were found in soft chancres, buboes, or in carcinomatous, sarcomatous, or lupus tissues.

After summing up their results these authors conclude that we are not far from finding the cause of the disease in this early form of life⁴³.

Results of Other Workers. Metchnikoff and Roux had already succeeded in infecting apes with syphilis⁴⁴, and now they found the spirochaeta pallida in small numbers in local lesions in four out of six infected monkeys⁴⁵. They found them, moreover, in four out of six cases in man in recent scrapings of secondary papules, and also in one case of congenital syphilis. In control cases (psoriasis, scabies, acne, etc.), they failed to find spirochaeta pallida. They have not succeeded in cultivating the spirochaetes, and have small hopes of doing so. They conclude that the spirochaetes probably play an etiological role in syphilis.

In the discussion on Schaudinn and Hoffman's paper, Thesing suggested that the spirochaetes were developed in the stain. This was controverted by Wechselmann, Lowenthal, Schaudinn, and later by Giemsa⁴⁶, who suggested that what Thesing saw were crystals of methylene blue or methylene azure. This side issue is still being discussed⁴⁷. Buschke and Fischer found the organisms in the tissues of a congenital syphilitic infant post mortem⁵⁰, and also in the blood of the same case taken during life⁵¹. Non-syphilitic children gave negative results. Frosch found spirochaeta pallida in the blood veins. Reekzeh found it in three syphilitics and failed to find it in two other non-syphilitic patients examined^{48a}. Raubitschek detected the spirochaeta in the circulating blood of secondary syphilis⁷⁹. Kraus²³ insists on the necessity of making a great number of preparations, the spirochaeta pallida being often very irregularly and unequally distributed. He has never found spirochaeta pallida in controls. R. Volk⁷⁷, on examining 31 syphilitic patients, found the parasite in great majority. The results were negative in 13 out of 14 syphilitic glands examined, and in 17 control non-syphilitic lesions. Levaditi³³ a, b, found spirochaeta pallida in fluid from the bullae of syphilitic pem-

phigus, and also in another congenital syphilitic infant, three months old, from the spleen, lungs, and, above all, the liver. Salmon⁷⁶ and Hoffman⁷⁴ confirmed these observations, and in addition the latter⁷⁴ reports that Schaudinn and he have found these spirochaetes in papular syphilides situated far away from the genitals, e. g., on the breast and back. Babes and Panca⁵⁵ report cases of congenital syphilis in which they found *spirochaeta pallida*. It was demonstrated in greatest numbers in the supra-renals. They believe that facts support the relationship of *spirochaeta pallida* to syphilis. E. Hoffman⁵⁶ has found spirochaetes somewhat similar to *spirochaeta pallida* in carcinomatous ulcers. He thinks that possibly some of these may be examples of *bacillus fusiformis*. C. Fraenkel⁵⁷ found the spirochaetes in six varied cases of syphilis and writes enthusiastically in support of Schaudinn and Hoffman, indeed going further than they do. He has no doubt whatever as to the etiological relationship of *spirochaeta pallida* to syphilis. R. Herxheimer and H. Hubner⁵⁸ examined 18 cases in two of which the diagnosis was between soft sore and syphilis. These gave negative results, and the subsequent course of the disease justified this finding. In 15 of the remaining 16 they found *spirochaeta pallida*, in one of these in sections of the tissues. This is so far unique. They failed to find them in syphilitic glands, in blood, or in the organs of congenital syphilitic children. Rille⁶⁴, Baudi and Simonelli⁶⁵, Ploeger⁶⁶, and Jensen⁷⁸ were all successful in finding the *spirochaeta pallida* in primary and secondary lesions and glands. Galli-Valerio and A. Lasueur⁶² refer to the results of other investigators, and then give their own. They used Michael's stain, Ziehl's fuchsin, and Romanowsky. They found the spirochaetes in specific condylomas and in mucous plaques in five out of six syphilitics. They failed to find them in a mucous plaque, a gland, and a hard chancre. In these cases the organisms may have been in very small numbers. They expressly note that Schaudinn and Hoffman do not claim that these organisms are specific. Wechselmann and Lowenthal⁵⁹ found very short spirilla 3 to 4 u. long, and ask whether the spirochaetes described by Schaudinn are not formed by the unison of several such micro-organisms. Vaillemijn⁶⁰ claims that spirochaetes are related to algae. *Spirochaeta pallida*, on the contrary, is correctly attached to the protozoa by Schaudinn, and Vaillemijn proposes the name of *spironema*. M'Weney⁶¹ found spirochaetes in 9 primary and 15(?) secondary cases of syphilis. His results were negative in a tertiary ulcer of the palate and in a non-ulcerating muco-purulent vaginitis. Jacquet and Sevin also failed to find spirochaetes in all tertiary lesions examined⁶⁷ (cf. *Spitzer*). Gordon⁶³ failed to detect spirochaete in the fluid obtained by lumbar puncture in cerebro-spinal syphilis

and in tabes with a distinct syphilitic history. L. Spitzer⁶³ found *spirochaeta pallida* in six primary sores, in seven skin eruptions, in some cases even after long treatment. This is also the experience with others. He found them also in two cases of tertiary syphilis—in one case from distinctive infiltrations, and in the other from a gumma of the scalp. The latter case had had no treatment. No other observer has been successful in cases of tertiary syphilis. M'Weeney, Gordon, and others suggest that tertiary lesions are caused by a chronic intoxication, due to absorption of the metabolic products of the spirochaete. Spitzer's results were negative to eczema, pemphigus, psoriasis, verruca, plana, and erythema nodosum. All the authors referred to so far (the references are arranged to a certain extent in the order in which their papers appeared) support Schaudinn and Hoffman. A very few are critical or even hostile.

H. Horand^{64a} refers to his published works of a *hemoprotiste* pathogenic agent of syphilis^{64b}. The spirochaete described by Schaudinn appears to be identical with one of the involution forms of this hemoprotiste.

Paltauf⁷⁰, discussing the relationship of *spirochaeta pallida* to syphilis, emphasizes the fact (according to Schaudinn) that it is not of bacterial but of protozoal nature, and represents an involution form of a blood parasite. Still, whilst one recognized trypanosomes and Spirochaetes as blood parasites, one did not know that they produced a form of granulation tissue, such as found in syphilis. M. Schuller⁷¹, in a review of Schaudinn and Hoffman's communication as to the occurrence of *spirochaeta pallida* in lymph glands⁴², doubts whether it has a causative relationship to syphilis at all. He believes that he has seen these bodies years ago, but described them as bacilli (references to paper given), and he can not understand Schaudinn's reasons for placing them amongst the animal parasites. He suggests that they may be contaminating bacilli. He also criticises the technique employed. Most of his objections have been answered by numerous workers already referred to, the strongest argument against them being that the *spirochaeta pallida* has been found only in syphilitic lesions, and never, except by Kiolomenoglu (v. Postea), in many non-syphilitic conditions examined by similar methods.

The most important paper on the negative side is that of Kiolomenoglu and von Cube⁷², just referred to. In the first place, they were able to confirm the absence of it in non-syphilitic lesions. In all their work they exercised the greatest care in making and staining their preparations. They found the organism in: (1) A collection of syphilitic cases. (2) In the secretion from an inflamed phimosis.

There may have been a masked primary lesion in this case. (3) In pus from a gonorrhoeal abscess of Bartholini's gland in a patient with leucoderma colli specificum. (4) In simple balanitis. (5) In pus from a scrofulo-dermatic abscess. (6). In the degenerative products of a suppurating cancer. (7) In tissue-juice of a condyloma acuminatum.

Negative results were obtained in acute gonorrhoea, syphilitic blood, acne vulgaris, impetigo, phthisical sputum, etc.

They do not hesitate to claim these bodies found in some non-specific cases as typical examples of *spirochaeta pallida*. Particularly characteristic was the preparation from the carcinoma. However, in all the above cases they found the *spirochaeta refringens* as well. But often they found—and to this they attach great weight—in one and the same field, in addition to the typical forms of the *spirochaeta pallida* and *refringens*, numerous atypical *spirochaete* forms whose character corresponded to neither of these. Some of them were not so long as *spirochaeta pallida*, and two to three flat wavy curves (*cf. Wechseltmann and Lowenthal*), whilst in all other respects they were like *spirochaeta pallida*. Others stood midway between the two, and it was impossible to correlate them with either.

There seems to be quite a *spirochaeta* fauna, especially frequent in stagnant secretions, so that they could not resist the conclusion that *spirochaeta refringens* and the above-mentioned atypical forms are manifestly saprophytes. It must be remembered, however, that they have found *spirochaeta pallida* as well in such secretions, and the idea that it also may be saprophytic is not at all, as yet, to be on one side. They think that C. Fraenkel's conclusion that the *spirochaeta pallida* is undoubtedly the cause of syphilis has been spoken rather too soon. "We are at least not yet in the position to determine the characteristics distinguishing *spirochaetes* occurring in syphilis from those occurring in other conditions."

One may say, in criticism, that granting all this, it does not necessarily exclude the possibility—judging from the many important, positive observations made—that the *spirochaeta pallida* may be the veritable cause of syphilis. It is a commonplace in bacteriology that many of the most important pathogenetic organisms may occur in or on the body as saprophytes, the condition being unfavorable to the exercise of their pathogenic powers.

Summary. Metchnikoff and Roux have proved that syphilis is transmissible to the anthropoid apes. Later Schaudinn and Hoffman described extremely delicate *spirochaete* forms in primary and secondary syphilitic lesions, and peculiar to syphilis. They were dis-

covered in hanging drops or making smears, and after fixation in alcohol, staining by a modification of Giemsa's method.

Metchnikoff and Roux found identical forms in the experimental lesions in monkeys. A considerable number of workers confirm completely the work of Schaudinn and Hoffmann. In addition, the spirochaeta has been found in the blood and organs of congenital syphilitic infants, and in acquired syphilis in blood obtained by puncture of the spleen on the day before the roesolar rash appeared, showing that it reaches the skin through the blood vessels. It has later been found in the circulating blood. A body described as spirochaeta pallida has been once seen in a section of a syphilitic tissue. In acquired syphilis it is found only in primary and secondary manifestations, practically never in the tertiary stage. Most authors agree that it is never found in non-syphilitic lesions. The balance of evidence seems to be in favor of the etiological relationship of spirochaeta pallida to syphilis.

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OPHTHALMOLOGY.

IN CHARGE OF

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It may not be out of place to preface this Review by a word on a curious phase in the evolution of this branch of medical science. From the time of the discovery of the ophthalmoscope the tendency of ophthalmology has been toward isolation. Instead of fitting snugly into the great mosaic of the medical branches, contiguous to neurology, internal medicine, rhinology, etc., it has evinced an unfortunate exclusiveness, occupying a little place apart. This arose in great part from the difference between certain of the problems of ophthalmology and those of other branches of medicine. It is difficult, for instance, to see any connecting link between the problems of optics and those, let us say, of internal medicine. Thus ophthalmic practitioners came to look upon an eye very much as dentists look upon a tooth—as being in the body but not an integral part thereof. In their daily practice they encountered so much that seemed satisfactorily explainable on a purely ophthalmic basis that they forgot or perhaps never realized the often scarce tangible but none the less real dependence of ocular defects on abnormal conditions of the economy. As the result of always directing the mental vision upon a plane surface they lost all sense of proportion and perspective.

That this unfortunate state of mind has wrought much harm can hardly be controverted. The man who has no sense of perspective is incapable of maintaining that openness of mind and freedom from prejudice indispensable to a scientific worker. If he develops an idea it inevitably undergoes hypertrophy. Is not the present hysteria on the subject of eyestrain the natural result of viewing the medical world through a tube? Is not dogmatic assertion the weapon of offense of the egoist with an obsession? Let those who decry achievements in other branches of medicine in the mad desire to establish a pet theory remember that Truth is a shy maiden and can not be won with alarums of the battlefield.

Happily signs are not wanting that a change is coming over the spirit of the ophthalmic world. The former disregard of general methods is being replaced by a deep appreciation of the value of the widest possible view. Thus will ophthalmology be rescued from that isolation which has prevented its proper coordination with other branches of medical science. And as one of the earliest consequences

will come the passing of the ophthalmic bigot whose smug self sufficiency has ever been a clog in the wheel of progress.

ANATOMY AND PHYSIOLOGY. An interesting study of the neuroglia of the optic nerve has been contributed by Jacoby¹. He found that the neuroglial fibres were thickest at the level of the lamina cribrosa. On the floor of the physiological excavation the neuroglial elements mingled with the connective tissue remains of the hyaloid artery. In the disk proper the elements were extremely attenuated. Concentrically arranged neuroglial fibres formed the intermediate tissue (Kuhnt) between the chordal ring and the retina which, according to the author, could be seen ophthalmoscopically as a narrow, bright strip surrounding the nerve entrance. In the retina the elements ran, for the most part, perpendicular to the course of the nerve fibres.

An important physiological contribution is Bielschowsky's² paper "On the origin of unilateral vertical movements of the eyes." On the basis of experiments and theoretical considerations this writer comes to the conclusion that, in addition to the cortical centres for associated ocular movements, there exist for each eye secondary motor centres independent of each other and of the will. These secondary centres can evoke unilateral vertical movements only when the influence of the cortical centres is in abeyance (sleep, narcosis) or in the absence of the fusion faculty.

As is well known the image of a luminous point held in front of the cornea is reflected from three surfaces—the anterior surface of the cornea, the anterior and posterior capsules of the lens. The first and second are upright images, the third is an inverted image. Hess³ has succeeded in demonstrating a third upright and a second inverted image, formed respectively by the anterior and posterior surfaces of the nucleus of the lens.

BACTERIOLOGY AND PATHOLOGY. During the year the bacteriology of the various types of conjunctivitis has engaged the attention of numerous workers. In the light of our present knowledge a pure bacteriological classification of conjunctival inflammations is still not feasible, but that such a classification will come in the near future, the trend of all recent work seems to indicate. When this has been accomplished an immense step in advance will have been taken not only from the standpoint of scientific exactness, but also from the practical view of therapeutics. For instance, it is even now well recognized that diplobacillary conjunctivitis yields with surprising rapidity to solutions of certain zinc salts which are ineffective in other types of conjunctival inflammations clinically indistinguishable. A paper which covers the ground pretty thoroughly is that of Pollack⁴.

It would appear from the investigations of BednarSKI that the

zonule of Zinn has hitherto received scant consideration from ophthalmic pathologists. At any rate the literature of the subject is very meagre. Bednarski avers that in pathological conditions the fibres are thicker, homogeneous and often exhibit hyaline degeneration. The thickening represents atrophy of the fibres. It might well be considered a barren year that did not give birth to a new theory as to the pathogenesis of senile cataract. This year we are invited by Roemer⁶ to consider that the lens becomes cataractous owing to the attack of a poisonous substance which kills its protoplasm in a way analogous to that by which a red blood corpuscle is destroyed by the process of hemolysis. As the human organism is capable of developing cytotoxic substances of the most various kinds and of increasing the amount of others already present in the blood it is possible that, as the result of the degenerative processes of old age, antibodies are set free in the blood which possess a specific affinity for a certain definite part of the lens protoplasm, and which, provided that the secretory apparatus fails to keep them away from the lens can, by uniting with corresponding receptors of the lens protoplasm, damage the cells of the lens, just as blood cells are damaged by the attachment to them of specific cytotoxins.

The problem of the pathogenesis of choked disk has been attacked by a number of workers. It would appear, in the light of our present knowledge, that there is scant justification for a strict adherence to the "mechanical" theory or to the view that choked disk is the outcome of a descending inflammation. The theory of an inflammatory origin has, however, the support of the majority of facts. In a lengthy paper, Kampherstein⁷ deals with the pathology and pathogenesis of choked disk in its clinical as well as pathological aspect. A histological examination of 51 eyes revealed distention of the intersheath space in 62 per cent. no distension in 37 per cent., inflammatory infiltration in the intersheath space in 75 per cent. The optic nerve was normal in 10 per cent., edematous in 60 per cent. and showed inflammatory changes in 56 per cent. In 64 per cent. inflammatory changes in the papilla were observed. The lamina cribrosa was pushed forward in 78 per cent. Raised pressure undoubtedly accounted for the choked disk of chronic hydrocephalus. However, the percentage of eyes in which there was neither edema of the nerve nor distension of the intersheath space was too large to warrant the acceptance of the mechanical theory as universally applicable. When meningitis was present the changes in the optic nerves and disks appeared certainly to be those of a descending neuritis. In the clinical part, the author gives a careful analysis of 200 cases of choked disk, controlled on the neurological side by such authorities as Westphal, Oppenheim, Thomsen and Remak. In this se-

ries there were 134 cases of brain tumor, 27 cases of brain syphilis, and 39 cases of other intracranial affections. In the large majority the normal pupillary reaction was preserved. It was present even in five cases of total loss of vision two of which showed a high degree of optic atrophy. The writer also refers to a case of post-papillitic atrophy in which, after eight years of blindness, both pupils reacted to light. Allusion is made to two groups of cases recently described by Nonne⁸: the first, presenting the symptom complex of cerebral tumor including choked disk, but terminating in recovery with atrophy of the optic nerves; the second, in which the patient dies with all the symptoms of cerebral tumor including choked disk, but in which pathological examination fails to reveal any changes in the brain or meninges.

The various factors concerned in the production, maintenance, and alterations of the intraocular pressure are still imperfectly understood. Much light has been thrown on the subject by Engelmann's⁹ careful tonometric investigations in animals and human beings. After ligation of the common carotid in rabbits the intraocular pressure falls on both sides, the lowering being rather greater and persisting for a longer period on the ligated side. After ligation of the external jugular vein there occurs a temporary rise in pressure on the corresponding side. In the human, during Valsalva's experiment and muscular work, the state of the intraocular pressure corresponds to that of the general blood pressure, but is less marked. Intraocular pressure is diminished in chloroform, increased in ether narcosis. Stimulation of the sympathetic in rabbits causes a fall: resection of the sympathetic or extirpation of the superior sympathetic ganglion causes a gradual fall with subsequent rise to normal or above normal. In four humans, removal of the superior cervical ganglion (two glaucomas, two Graves disease) caused merely transitory decrease in intraocular pressure. Physiological variations in the width of the pupil had no effect on intraocular pressure. Contraction of the orbicularis causes considerable rise. In rabbits tenotomy of all the recti muscles causes a fall. Intraocular pressure does not vary with the rotation of the eyes provided that parallelism of the visual axes is maintained. During strong convergence pressure is increased, but accommodation disassociated from convergence has no such effect.

Vascular involvement of the cornea in trachoma varies from the invasion of a few extremely attenuated vessels barely visible with the loupe to a dense elevated fleshy mass. Very rarely the new formation partakes of the character of a pseudo-tumor. Such a case is described by Hirschberg and Ginsberg¹⁰. The cornea was covered by a greyish red prominent granulation mass, hanging over the conjunctiva

and flattened by the pressure of the lids. Microscopically this proved to be a pannus which, probably as the result of tuberculous contamination, had given rise to granulation tissue. Benign tumors of the fundus are sufficiently rare to warrant allusion to a case reported by Manch¹¹. A greyish nodular tumor projected 4 mm. into the vitreous: this was associated with a round black area at the site of the macula. The patient was under observation seven years, during which time no change took place in the appearance of the tumor. Cysts of the pars iridicae retinae is the subject of an important contribution by Oatman¹². A serous cyst, situated on the posterior surface of the iris was found microscopically to have resulted from the separation of the layers of pigmented epithelium which form the retinal tract of the iris. The condition is therefore entirely analagous to detachment of the retina proper and is designated "detachment of the pars iridicae retinae."

Deformities of the skull associated with exophthalmus and blindness has been the subject of a number of papers. Unthoff¹³ presents three cases. In the first there was marked peaked skull with neuritic atrophy of the optic nerve and blindness. In the second external hydrocephalus with pachymeningitis and optic neuritis. In the third intense internal hydrocephalus. Gross alterations in the shape of the orbits consequent upon dislocation of the cranial bones explains the pushing forward of the globes. Patry¹⁴, in a very carefully worked up monograph, presents a study of ocular lesions in Tower Skull. The principal features are pronounced exophthalmus, frequent divergent squint and post neuritic atrophy of the optic nerves. The dome shaped skull, rising from the forehead and separated from the temples is characteristic. The supraorbital ridges are entirely absent. The cranial deformity, which is due to premature synostosis of the coronal and sagittal sutures, begins in earliest infancy. Relatively good vision is often maintained. Individuals thus afflicted are usually of a low order of intelligence, but there are many notable exceptions to this rule, as witness Sir Walter Scott, Humboldt and Paracelsus, all of whom had this cranial deformity in marked degree. Patry believes, with Virchow, that a meningitis is the primary cause of both the optic neuritis and the cranial deformity.

LIDS. The ordinary form of blepharospasm, namely, that evoked reflexly by conjunctival and especially by corneal irritation is usually easily and quickly cured by removal of the cause. Another type is dependent, at least in part, on refractive errors. Finally there occur, very rarely, extremely severe cases of blepharospasm in elderly people in which it is difficult or impossible to determine an etiological factor. Such cases are in a most wretched condition, being to all intents and

purposes blind from the nearly constant closure of the lids and go the rounds of oculists and neurologists in the vain hope of obtaining relief. Medical and the milder forms of surgical intervention, such as subcutaneous section of the branches of the facial nerve, have proved wholly ineffective. A case reported by Abadie and Cuneo¹⁵ was first subjected to section of the frontal and infraorbital nerves and later to resection of a considerable portion of the orbicularis without relieving the spasm. Cuneo then sectioned the facial nerve and implanted the peripheral end in the external branch of the spinal accessory, with ultimate entire relief from the spasm.

LACHRYMAL APPARATUS. Considerable interest has recently been shown in the subject of dacryoadenitis, which receives scant consideration in the majority of textbooks, on the assumption that the disease is rare and unimportant. Recent papers seem to indicate that this assumption is erroneous. For instance, Inman from the Royal London Ophthalmic hospital reports ten cases occurring within a period of two years. The association of urethral gonorrhoea with acute inflammation of the lacrimal glands is occasionally observed. Such cases bear some resemblance clinically to specific gonococcal ophthalmia except that the discharge is scanty and does not contain gonococci. The disease is probably due to toxins of the gonococcus. Pes¹⁶ describes four cases, in all of which recovery was prompt under simple measures. The reviewer recently has had the good fortune to observe a similar case. The whole subject is carefully gone over by Wicherkiewicz¹⁷.

CONJUNCTIVA. The etiology of vernal conjunctivitis remains an unsolved problem in ophthalmology. Histologic examinations have thrown but little light on the ultimate origin of the disease. In this connection an interesting observation has recently been made by Dimmer¹⁸. He reports a cure of the disease by simply keeping the patient in the dark and infers, therefore, that light is the causative agent. The lesions of phlyctenular conjunctivitis have hitherto been described as confined to the bulbar portion of the membrane. Schiele¹⁹ has recently demonstrated the presence of elongated and flat blebs in the tarsal conjunctiva. These vesicles become open ulcers which coalesce and form large defects. In other cases he observed firm collections of lymphoid cells. That curious affection—conjunctivitis nodosa—has been the subject of careful investigation by a number of observers. De Schweinitz and Shumway²⁰ give a very good account of a case with histologic examination. The disease is due to the presence in the conjunctiva, and episclera or rarely in the iris of the hairs from certain species of caterpillars. Each hair forms the centre of a nodule which contains microscopically giant cells and round cell

and lymphocytic infiltration. Spindle cells have been noted in a number of instances and sometimes a fibrous capsule is present. Indeed the macroscopic and microscopic appearances are such as to justify Wagenmann's appellation of "Pseudotuberculosis of the conjunctiva." The hairs may penetrate deeply but are prevented from returning by spines coming off from the shaft at acute angles. The irritation may be mechanical or possibly due to formic acid which is present in the hairs. Bacterial infection is absent. Conjunctival irritation excited by proximity to a horse is the subject of an interesting paper by Posey²¹. This hitherto unrecognized clinical entity has a symptomatology similar to that of hay fever and occurs in certain individuals who manifest a peculiar susceptibility to chemical or bacterial substances which emanate from the horse. An elaborate consideration of tuberculosis of the conjunctiva is offered by Villard²². It is impossible to give even a faint outline of this splendid paper which really sums up all our present knowledge of this disease. The possibility of the disease originating from a nasal tuberculosis by way of the lacrimal passages is pointed out. Villard believes in an exogenous origin and endorses the hypothesis of Fuchs that the tuberculous virus enters through minute conjunctival abrasions caused by the presence of small foreign bodies.

CORNEA AND SCLEROTIC. Until recent years the occurrence of corneal inflammation in acquired syphilis has been universally denied. That this position is erroneous is proved by the ever increasing number of reported cases in which inherited syphilis can be positively excluded and which respond to the therapeutic test. From an examination of cases in literature Villard²³ has attempted a clinical classification as follows (1) Interstitial keratitis (a) diffuse (b) localized. (2) Primary punctiform keratitis. (3) Gummatous keratitis. Concerning the last named Villard expresses a doubt as its ever having been observed. That it does occur though rarely seems reasonably certain in the light of cases recently reported by Vinsonneau²⁴ and Terson²⁵. The relation of the diplobacillus of Morax-Axenfeld to ulceration of the cornea seems to indicate that this organism is by no means as harmless as has been assumed. In 26 cases of corneal ulcer resembling clinically serpent ulcer Paul²⁶ was able to demonstrate diplobacilli on the floor of the ulcer unaccompanied by any other organism to which the process might be ascribed. The ulcers were round and shallow and surrounded by diffuse infiltration. It is of the utmost importance that such ulcers be differentiated bacteriologically from infections due to the pneumococcus, as the specific zinc salt treatment of the one would be without effect on the other. In this connection Erdman's²⁷ investigations on the resisting power of the diplobacillus in dried

secretions is of interest. He was able to inoculate Loeffler's serum with dried diplobacillary discharge and cultures therefrom were capable of infecting the conjunctiva. A rare cause of corneal ulcer is the streptothrix recently investigated by De Berardinis²⁸. He reports two cases: one mild, terminating in leucoma, the other severe ending in panophthalmitis. It seems possible that streptothrix ulcers have remained undiscovered or been ascribed to diplococci owing to the loss of the typical branched appearance in unsuitable media. He advises cultivation on blood serum. Injuries to infant's eyes from pressure of obstetrical forceps have been alluded to in a former Review. Cases of traumatic keratitis in the new-born have been reported by Stephenson²⁹ and Fejer³⁰. In this connection it may be interesting to refer to the classification of Thomsen and Buchanan who describe three forms of traumatic keratitis in the new-born (1) Diffuse temporary opacity (due to edema) (2) Diffuse permanent opacity (edema followed by inflammation or detachment of Descemet's membrane) (3) Permanent linear opacity (linear rupture of posterior elastic lamina of the cornea with subsequent formation of cicatricial tissue).

IRIS AND CILIARY BODY. The occasional development of iritis in the course of a gonorrhoeal urethritis has led to the pretty generally accepted belief in a relationship between the two of cause and effect. This view has been vigorously attacked by De Lapersonne³¹ who contends that the case for a gonorrhoeal iritis must at least be considered "not proved." Campbell³² describes three cases of iritis, without history of syphilis or rheumatism, but associated with pyorrhoea alveolaris. Treatment with mydriatics was ineffective until combined with treatment directed to the oral disease.

The peculiar expression of the eyes of tabetics is due to several factors, namely, miosis, slight enophthalmus, narrowing of the palpebral fissure, and absence of the light reaction of the pupil. In addition Dupuy-Dutemps³³ notes the change in the appearance of the iris loss of the normal prominences of the anterior surface so that the iris appears practically devoid of all relief. The deformity of the pupil so frequently observed is due to partial atrophic changes in the iris; that portion of the pupillary border corresponding to the atrophic zone is that which has the greater radius of curvature. Histological examination of one case showed simple atrophy of the iris fibres.

LENS. The subject of artificial maturation of the cataractous lens is an important one and deserves rather freer discussion than has recently been accorded it. The patience of surgeon and sufferer alike is apt to be exhausted by the postponement of extraction for months and years or until the lenticular condition has reached by natural pro-

cesses that degree of maturity which experience has shown yields the highest percentage of clean and satisfactory operations. Stroking of the cornea against the lens after preliminary iridectomy is praised by McHardy³⁴ in no measured terms. A new method based on the observation that cataract frequently develops in eyes exposed to great heat has been published by Wolfberg³⁵. By means of an apparatus he directs a current of hot air at 70 degrees C. upon the eye for a short time several times daily. He has used the method three times after discision of the lens in myopia and three times after iridectomy preliminary to the extraction of the lens in senile cataract. The time required to attain ripening was about eight days. The "non-operative cure of cataract" is a title suggestive of a brochure issued by the manufacturers of that great "resolvent" of cataract "Cineraria Maratima." But that is precisely the subject discussed by one of the most eminent French ophthalmologists De Wecker. The revival of interest in this subject must be largely ascribed to Verdereau of Barcelona who reports astonishing improvement in vision after a course of subconjunctival injections of potassium iodide. This work is still too newly fresh to warrant critical comment and to the best of the reviewer's knowledge has not been confirmed. Ossification of the lens is described to two cases by Roure³⁶. The surface consisted of a thin, hard yellowish layer and the interior of a white substance exactly resembling chalk which chemically consisted of carbonates and phosphates. Throughout the lens bone corpuscles were found in abundance.

VITREOUS. The role, if any, played by the vitreous in idiopathic and myopic detachments of the retina is a question that is still undecided. Best³⁷ has observed a slight peripheral displacement of the vitreous with each movement of the eye, this shifting being immediately followed by readjustment and believes he has found an explanation for idiopathic detachment. Elschnig, on the contrary, as the result of a microscopic examination of 17 eyes with myopia from 2 to 30 dioptries and of 5 eyes with posterior staphyloma or with coloboma of the optic nerve concludes that true detachment of the vitreous is rare and he is therefore opposed to the theory that vitreous detachment is the usual precursor of detachment of the retina.

RETINA AND OPTIC NERVE. That curious disease—amaurotic family idiocy—has engaged the attention of several writers, notably Eliasberg³⁸, Poynton and Parsons³⁹ and McKee, Buchanan and Shumway⁴⁰. A histological examination by Shumway confirms Holden's view that the essential changes in the eye are degeneration of the ganglion cells of the retina and of the nerve fibres of the optic nerves and tracts. The consensus of opinion seems to be that the condition is a true degenerative one. In these cases there is always present an

inherited essential failure of vitality—the so-called “abiotrophy” of Gowpers. Lesions of the optic chiasm frequently go unrecognized according to De Schweinitz and Carpenter⁴¹, because of failure to determine the precise character of the visual field, for which determination the most refined methods are absolutely indispensable. The most characteristic alteration of the visual field is a bitemporal hemianopsia which is pathognomonic. Simple and post neuritic atrophy, partial atrophy, optic neuritis of all grades of severity and choked disk all occur in diseases of the chiasm. Sympathetic disease manifesting itself solely in the retroocular portion of the optic nerve is the almost unique observation of Consiglio⁴². There appears to be only one other case in literature. An observation of great interest is that by Sachsaler⁴³ on the total disappearance of medullated nerve fibres in the retina after inflammatory atrophy of the optic nerve from cerebral tumour. The possible disastrous effects of iodoform on the eye is well illustrated by Mohr’s⁴⁴ case of papilloretinitis (later atrophy) following the injection of a ten per cent. iodoform emulsion in coxitis.

INJURIES AND ENTOMOZOA. Radical ruptures of the iris are much less frequent than peripheral detachments from the ciliary body. Of extreme rarity is double radial rupture. Ayres⁴⁵ describes such a case following gun shot injury to the lower lid in which the iris was detached from both sides as well as from the ciliary border. A burn of the eye and lid by potassium permanganate crystals is reported by Powell⁴⁶ with complete recovery under the use locally of castor oil. The successful removal of a subretinal cysticercus situated below and external to the papilla is reported by Bardelli⁴⁷, who comments on the value of Folsini’s method for determining the presence of intraocular cysticercus. The method is as follows: Light is projected into the immovable eye at a distance of 50 cm. If the parasite be present the pupil is seen to be occupied by a shadow which shrinks and expands, occasioned by the movement of the cysticercus.

SYMPATHETIC OPHTHALMIA. The rare occurrence of this disease after panophthalmitis seems now to be well established. A case has been published by Ahlstrom⁴⁸ who refers to two prior cases published by Schirmer. Reference was made in the Review for 1903 to the cytotoxine theory of sympathetic ophthalmia elaborated by Pusey. A similar conception has been developed by Golovine⁴⁹ who holds that there is brought about a destruction of ciliary cells whose absorption gives rise to the formation of cytotoxines in the system. Under certain conditions these cytotoxines are conveyed to the fellow eye where they are capable of setting up a similar process in the corresponding ciliary region. Organisms in the blood might also contribute but their role would be a subsidiary one. In pursuance of this theory, Golo-

vine endeavored to cause heterotoxines to be elaborated by animals of one species which should be specific for animals of another. He injected repeatedly into the peritoneal cavity of the rabbit an emulsion made from the ciliary body and iris of the dog. When the cytotoxic serum is injected into the eye the same picture is always presented: circumcorneal injection: numerous small deposits on the posterior surface of the cornea as in keratitis punctata; fibrinous exudate into the anterior chamber, and iritis. Microscopically, the anterior chamber contains a sero-fibrinous exudate with phagocytes full of pigment granules, iritis, infiltration of the pectinate ligament: fibrinous exudation into the ciliary body in which pigment bearing leukocytes are imbedded. The cells of the ciliary body are swollen, the nuclei atrophied and often vacuolated. When the serum is injected into the general circulation there are no visible ocular changes but microscopically there is found a fibrinous exudation under the epithelium, swelling of the epithelial cells, and vacuole formation in the nuclei. There is intense depigmentation of the pigmentary layer.

GLAUCOMA. In the diagnosis of glaucoma simplex increasing importance is attached to the exact determination of the visual field by the method of Bjerrum. This is made with a black velvet screen placed at 1 to 2 metres from the patient, the test objects being minute ivory balls. In glaucoma (in distinction to optic atrophy) there exists a defect in peripheral acuteness which extends right up to the blind spot. Increased tension after contusion of the globe is ascribed by Peters⁵⁰ to a change in the consistency of the aqueous which becomes gelatinous thus mechanically obstructing the circulation in the angle of the chamber. Cloudiness of the cornea in glaucoma has generally been ascribed to edema of the stroma. Silex⁵¹, who has made a very careful study of this condition concludes that the cloudiness is due to a multiple reflection of light incident to the formation of doubly refracting elements by the stretching of the corneal fibres. It would appear that less and less attention is being paid to sympathectomy, but that it may occasionally be of immense service is indicated by Henderson's⁵² report of excellent results from total bilateral removal in chronic congestive glaucoma and in glaucoma simplex after unsuccessful iridectomies. Paracentesis of the anterior chamber by galvanopuncture as a compromise between iridectomy which may be refused by a timid patient and no operation at all is suggested by Haberkamp⁵³. He has found that a puncture made in this manner heals very slowly so that drainage is prolonged.

THERAPY. Several reports adverse to the use of Roemer's pneumococcus-serum in serpent ulcer have been published, notably by Zur Nedden⁵⁴ and Paul⁵⁵. Roemer⁵⁶ himself (as is generally the case with inventors) claims an almost specific action for his serum. Intraocular disinfection by iodoform appeared to have earned for itself a perma-

nent place among ophthalmic therapeutic methods. An opposite view is held by Krauss⁵⁷, who, from an examination of the literature and personal animal experimentation concludes that iodoform disinfection rather hinders cure and does not invariably prevent sympathetic disease. He believes that the application of general surgical principles in infected wounds of the eye would give better results. Dionin is gaining wider and wider recognition as an extremely valuable agent in a large number of external and internal diseases of the eye. In subconjunctival injection it was found by Blanco⁵⁸ to cause resorption of a severe intraocular hemorrhage with restoration of vision to normal. The wisdom of the routine application of an occlusive dressing in many ulcerative affections of the cornea is called in question by McGillivray⁵⁹ in a paper entitled "The importance of the corneal temperature and nictitation in corneal therapeutics." By means of the thermo-electric couple he determined that the temperature of the cornea was 188 F. below that of the body. Closure of the lids, as from photophobia, raises the temperature of the cornea to the point most favorable to microorganic growth. At the same time the abolition of winking is disadvantageous as normal nictitation is an efficient means of freeing the corneal surface of germs. For corneal ulcers which refuse to heal under the lotion, atropin and bandage treatment Lawson finds that a 1 per cent. solution of quinine sulphate is remarkably efficacious.

Daxenberger⁶⁰ has used with success a 10 per cent. solution of aristol in oil of sesamum, especially in blepharitis, lime burns of the conjunctiva and cornea and in phlyctenular keratitis. A novel method of treating tobacco amplyopia is advanced by Wray⁶¹. On the assumption that the tobacco poison is largely eliminated by the kidneys, he orders his patient to drink copiously of warm water several times a day. Several cases are reported in which cure was effected in a short time, the patients continuing meanwhile the moderate use of tobacco. In view of the increasing popularity of preparations of suprarenal gland it should be noted that occasionally unlooked for and untoward results may attend their use. Thus Senn⁶² used adrenal in 1-1000 in conjunction with eserine 1 per cent. in a case of chronic glaucoma. Fifteen minutes later his patient was suffering intense pain, the globe was "glassy white" and stony hard and the pupil was dilated *ad max.* Valude⁶³ has found that antipyrin is remarkably efficacious in optic atrophy consecutive to acute infectious cerebral processes. Stovaine, the new anaesthetic, seems to have acquired a permanent place in ocular therapeutics, especially in subconjunctival injections. A new anaesthetic-alpin-is commented upon favorably by Stephenson. Liekienik⁶⁴ reports a series of 310 cases of trachoma treated by means of a glass ball 7-10mm. in diameter mounted on a long handle. The ball is dipped in an antiseptic so-

lution, introduced under the lid and stroked back and forth. It is claimed that both granulations and pannus yield quickly.

OPERATIONS. The ancient question as to the advisability of enucleating during panophthalmitis is discussed by Enslin and Kuwahara who had the misfortune to lose a patient from acute meningitis following removal of a chronically inflamed soft globe. During operation the sclera was buttonholed and the fresh cut tissues of the orbit were apparently infected by the intraocular bacteria. The weight of present day opinion seems to be against enucleation although strong support is given the opposite view (Nettleship, Marshall). An interesting controversy as to the relative merits of sclerotomy and iridectomy was waged between Dianoux⁶⁵ and Abadie. Abadie, the champion of iridectomy, avers that sclerotomy is powerless to check the glaucomatous process and that the benefits derived endure only a few weeks. Dianoux, who has abandoned iridectomy entirely, believes that the crux of the whole matter lies in an imperfect understanding of what is meant by sclerotomy most operations going by this name being, in Dianoux's opinion, little better than paracentesis. He operates as follows: puncture and counterpuncture are situated at the root of the iris, as indicated by the engorged vessels coming from Schlemm's canal. After rotary movements to permit the escape of aqueous, the wounds are enlarged to 3mm. The next step consists in withdrawing the knife into the anterior chamber, the point marking out a furrow in the angle of the cornea and iris up to the wound of entrance. It is essential that the true sclera be incised. The after treatment is just as important as the operation which is merely the first step in the management of the case. Twelve hours after the operation the dressing is removed and the globe gently massaged, thus effecting a partial reopening of the wounds and causing an escape of aqueous into the spaces under the conjunctiva. This procedure is repeated for the next 4-5 days and a collyrium of eserine, pilocarpin and cocaine is used. Dianoux is convinced that if the patient gets sufficiently interested in the mechanics of his own case to carry out a prolonged after treatment with miotics faithfully he will be permanently relieved of his trouble. motions faithfully he will be permanently relieved of his trouble. An observation of Axenfeld that a certain proportion of glaucomas operated by iridectomy or sclerotomy showed a detachment of the choroid led Heine⁶⁶ to investigate whether an artificial communication between the anterior chamber and the suprachoroidal space might not be an efficient means of lowering intraocular pressure. The communication was effected by pushing a stylet through a scleral puncture, penetrating the pectinate ligament and thus entering the anterior chamber. The results in twenty blind glaucomatous eyes were distinctly encouraging, all showing permanent decrease in tension. The

operation is called "cyclodialysis." The deplorable condition known as "cicatricial orbit" in which the contraction of the socket after removal of an eye reaches such a degree that the wearing of an artificial eye is impossible has engaged the attention of a number of operators, notably Grunert, Gullstrand and Hotz.⁶⁷ Through their efforts and that of Maxwell the condition can now be attacked with every prospect of success. Two successful cases of the Maxwell operations have recently been reported by Ball⁶⁸.

INSTRUMENTS AND APPARATUS. A needle holder for straight and curved needles has been devised by Cole Baker. Four rods are clamped together at one end, the other ends being bevelled so as to admit of separation. Over the rods runs a tube one inch in length which can be freely moved toward either the clamped or free ends. The latter can thus be made to close over a straight or curved needle which is firmly held. In use the instrument is simply rotated by the fingers thus insuring a delicacy and accuracy greater than with needle holders of the ordinary type. Several devices for applying a stream of warm air to the eyes and adnexa have been described. Hoor's⁶⁹ apparatus consists of two small boxes fastened on a V-shaped holder. Asbestos interwoven with electric wires which can be attached to the street current furnishes the heat. Two very ingenious clamps for holding the lid in eversion and controlling hemorrhage have been devised by Ewing⁷⁰ to facilitate incision of the tarsus in his operation for entropion. The reviewer has had some experience with these clamps and finds they are simple and effective for the purposes designed.

AMBLYOPIA AND VISUAL DEFECTS. Heine⁷¹ avers that the cause of congenital amblyopia in 90 per cent. of the cases is a round or oval absolute or relative central scotoma. The condition is either functional in which case it is acquired in early infancy or congenital and then anatomical. Ophthalmoscopic changes are not missing entirely but are rare. Often the only sign will be a difference in the macular and foveal reflexes of the two eyes. Stuelp's⁷² report of a case of amaurosis from Felix Mas gains its especial interest from the fact that it is the first case in literature in which an ophthalmoscopic examination was made shortly after the onset of blindness. The pupils were dilated and fixed. The entire fundus was covered with a copious snow-white edema. The arteries were like threads with columns of blood broken into little portions; the veins were tortuous and filled with broad and dark columns of blood. One month later the disks were white, the fundus splotted with white and a triangular grey red spot occupied the fovea. A very few arteries, yellowish and cord like, could be seen here and there. Stuelp believes that the poison, conveyed by the blood stream, irritated the finer muscular tissue of the vessel walls and caused spasmodic

contraction followed by paralysis of the muscular coat, vascular stasis, and deeper paralysis of the ganglion cells and prolongations.

REFRACTION AND OPTICAL QUESTIONS. Permanent myopia developing as the result of traumatism is the subject of an interesting paper by Bourgeois⁷³. The condition is probably not as rare as the rather scanty literature would seem to indicate. In hitherto recorded cases the myopia has been temporary. The forward propulsion of the lens becomes possible only by the stretching or tearing of the zonule of Zinn. As the lens and iris are thrown forward the aqueous is forced backwards into the posterior chamber or circumlental space and that space remains distended by aqueous unless the fibres of the zonule recover sufficiently to draw the lens back and so relieve the pressure against the iris. A most interesting study and one that has a distinctly practical bearing is that by Lagrange⁷⁴ on the change in the grade of astigmatism with increasing years. He has determined that the astigmatism of hyperopes has a marked tendency to increase with age and this tendency is greater if the patient has never worn correcting lenses. The astigmatism of myopes, on the contrary has a slight tendency to diminish. The change, as indicated by retinoscopy, seems to be an increase in convexity of the horizontal meridian of the cornea. These results suggest the advisability of undercorrecting astigmatism in young persons. Modification of one meridian of the corneal curve has been observed by Deschamps⁷⁵ to follow subconjunctival injections, an effect attributable to traction on the cornea by the conjunctiva which has become adherent to the sclera. Test types consisting of alternate red and green stripes 6mm. in diameter, running at different inclinations to conform to the different meridians of astigmatism have been devised by Polack.⁷⁶ When viewed at 5 metres the hyperope sees the green bars white and the red a dull red: the myope sees red as pale rose and the green as a grey: the emmetrope the green as full green and the red a bright red. The testing is carried out in the ordinary manner with the lens box.

DISTURBANCES OF MOTILITY. The subject of associated movements of the head and eyes in infants is described by Hamill and Posey⁷⁷ who report three cases. In all there were constant shaking movements of the head and nystagmus. The immediate etiological factor is unknown but it appears that rickets is a predisposing factor. The authors incline to the view that the seizures point to instability of the motor centres above the nuclei in the spinal cord and fourth ventricle, therefore attributing the disorder to a functional or other disturbance of the cerebral cortex. The child has acquired certain voluntary or purposive movements of the head and eyeballs but these have not as yet become thoroughly organized and fixed in the psycho-motor areas of the

brain. Hence a dissolution takes place because of the inability of the strained cortical centres to stand the work to which they have been too early subjected.

RELATIONS WITH MEDICINE. It is well known that optic neuritis occasionally develops during the course of typhoid fever. Its occurrence in paratyphoid is reported by Flatau.⁷⁸ Tetanus following injuries to the eye is very rare. Two cases have been published—one by Ramsay⁷⁹ following a contusion wound of the outer canthus, the other by Oeller⁸⁰ following panophthalmitis. It is a curious fact and one difficult to explain that the prognosis for life in diabetic retinitis is rather better than in the similar retinitis of Bright's disease. Nettleship⁸¹ reports a series of forty-eight cases of retinal changes in diabetes of which 60 per cent. were living two years later and only 20 per cent. died within a year. The ocular complications of cerebro-spinal meningitis are discussed by Heine⁸² who recognizes three principal groups. 1st. Affections of the motor apparatus. Infrequency of winking is of diagnostic value as an early sign. Sixth nerve paralysis is frequent. All the extrinsic muscles are at times involved. 2d Retinal hemorrhages, slight optic neuritis. Basilar meningitis is responsible for sudden blindness without ophthalmoscopic change. 3d. Metastatic uveitis, pyemic panophthalmitis the pus containing Weichselbaum's diplococcus. The occurrence of panophthalmitis does not appear to make prognosis any more grave.

Teilleis⁸³ has published a new ocular sign in exophthalmic goitre, namely, abnormal brownish pigmentation of the eyelids.

EYE AND SINUSES. The role played in diseases of the eye by the accessory sinuses of the nose is yearly gaining wider and wider recognition. Posey⁸⁴ in a short but highly instructive paper refers to some ophthalmologic phases of diseases of the accessory sinuses. He notes slight optic neuritis in ethmoid, sphenoid and antral disease. Other ocular symptoms are edema of the lid, paresis of the extraocular muscles, pseudo-migraine ophthalmique etc. Uveitis and vitreous opacities are ascribed by Fish⁸⁵ and Patterson⁸⁶ to accessory sinus disease. The pain in such cases is referred to the eye. Fish's six cases of uveitis were cured by probing and syringing diseased frontal sinuses.

MISCELLANEOUS. The actual conditions under which enginemen have to work was investigated by N. M. Black, who, armed with a camera, travelled several thousand miles in an engine cab. He secured very valuable data tending to show that various external conditions may alter the appearance of signals or obscure them altogether. Black believes that it is often impossible for the engineer to discern the precise character of a signal and is surprised that accidents are not more frequent than they are.

NEW PUBLICATIONS. The following is by no means exhaustive but is believed to include most of the new books of importance. "Die Wirkungen von Arznei-Mitteln und Giften auf das Auge" by Lewin and Guillery. "Encyclopedie francaise d'ophtalmologie" Tome quatrieme—by Lagrange and Valude. "Syphilis of the Eye" by Terrien. "Ophthalmic Operations" by Czernak. "The Muscular Tissue of the Human Iris; its Structure and Development" by Forsmark. "Errors of Refraction" by Charles Blair. "The Conjunctiva in Health and Disease" by N. B. Harman. "Atlas and Epitome of Operative Ophthalmology" by Haab and De Schweinitz. "Investigations on the Pigmentation of the Retina" by Hirsch. "The Ophthalmic Year Book for 1905" by Jackson and De Schweinitz. "Ocular Affections Connected with the Female Genital Organs" by Berger and Loewy. "Local Anaesthesia in Ophthalmology" by Prof. Best. "The Artificial Eye" by Robert Coulomb.

The deaths of the year include Johann Hjort, Parinaud and Frank Buller.

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ORIGINAL ARTICLES.

TRANSFUSION.*

BY WALTER B. DORSETT, M. D., St. Louis.

By way of explanation of the title of this paper, I will say that the subject-matter I here present will deal with the introduction of normal saline solution alone directly into the venous channels or into the cellular tissue, by enema, and the partial filling of the abdominal cavity with the saline solution after abdominal section; in contradistinction to the injection of blood from one person into the veins of another, as was practiced many years ago. A more comprehensive title would be, "The Introduction of Fluids Into the Circulation."

It is claimed that the first method of treatment of shock was by the transfusion of blood from a healthy individual into the veins of another suffering or dying from the loss of blood. Later the transfusion or introduction of sheep's blood into the venous circulation of the human species.

Transfusion was not only much used during the past three centuries, but the practice was so abused in the treatment of disease and so vaunted as a means of prolonging the life of the aged, that in the early part of the Eighteenth century the French government passed laws prohibiting it and assessing severe penalties on those intercepted in its practice.

So far I have used in transfusion the normal saline solution alone, and as adjuvants, in a few instances, hypodermic injections of camphorated oil, strychnia and adrenalin.

J. P. L. Mummery, in the *London Lancet*, April 1st, 1905, says: "With the experimental data now at hand and by observations made with the sphygmometer I think it possible to arrive at definite, satisfactory results by use of artificial serum which may be enhanced by the addition of certain drugs; adrenalin, and ergot," and sums up his article as follows:

"*Surgical shock* is a condition produced by exhaustion of the vasomotor centers and the resulting great fall in blood pressure.

"*Collapse* is a similar condition caused by lowering of the blood pressure from hemorrhage or paralysis of the vasomotor centers."

*Read before the St. Louis Surgical Society, November 15, 1905.

In another paper he says: "Of the most effectual methods of treating shock is the administration of such drugs as adrenalin, hemisine and ergot in conjunction with artificial serum. Adrenalin if used in strong solution will cause spasm of the heart by contraction of the heart muscle."

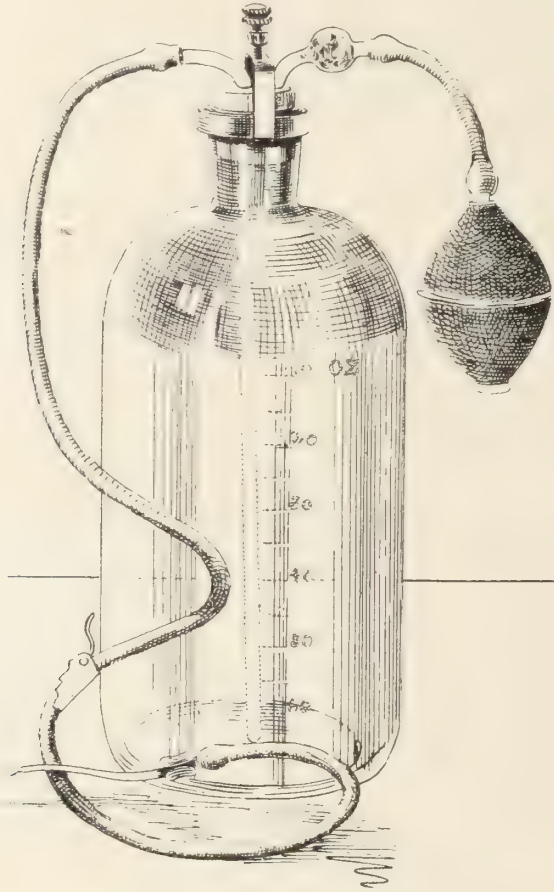


FIG. 1.—Transfusion apparatus.

Janeway records a case where 20 minims of 1-1000 was injected intravenously with the result that after an interval of five minutes the blood pressure rose to a great height, reaching 230 mm. of mercury in the course of the next three minutes. This was followed by a rapid fall in the pulse, there was a collapse accompanied by delirium and vomiting and recovery was not complete for some hours. Von Fuerth points out that apoplexy might follow its use in people predisposed.

The most serious objection to adrenalin is the short duration of its effect, but it might be contended in its favor that after its first action is

over, the artificial serum will continue the effects, and it is the immediate effect which we want, as the marked physiology of shock teaches us the great fall in blood pressure is due to lack of peripheral resistance due to general vasomotor dilatation.

The action of suprarenal extract in the raising of blood pressure was first demonstrated by Oliver and Schaffer in experiments on animals. In the *Journal of the American Medical Association*, January 24th, 1904, G. W. Crile proved most conclusively that the action of adrenalin was due to a direct contraction of the blood vessels and heart muscle. This was done by severing the spinal cord of a dog and keeping him alive with adrenalin, saline solution and artificial respiration. He also states that an artificial serum with adrenalin added and poured into the abdominal cavity before it is closed, will hasten recovery from shock. Craig reports two cases of surgical shock treated by saline infusion with addition of adrenalin, both cases of accident with severe shock, and both recovered.

In "Problems Relating to Surgical Operation" (Crile), published by J. B. Lippincott, 1901, we find: The treatment varies when the patient is suffering from shock (due to exhaustion of the vasomotor centers) and collapse, which must be considered as a temporary suspension of function of the cardiac or vasomotor mechanism, or due to hemorrhage. Salt infusion has only a limited field in shock, while it always is extremely effective in collapse, especially that form due to hemorrhage. In shock we need some therapeutic means to act as a constriction on the peripheral vessels. According to Crile, adrenalin added to the salt solution given intravenously, does this. As yet only a few cases have been reported, all favorably.

Dr. F. Le Jars, Surgeon to the Paris Hospital, in an article entitled, "The Treatment of Patients Who Seem Deplorably Ill in Consequence of Accident, Hemorrhage or Infection," says: "The mechanism of death from hemorrhage is not a single one as there is not only a functional death due to extreme loss of corpuscles but a mechanical death due to the extreme depression of the vascular tonus, a collapse of the vessels through emptiness, so that they can no longer react usefully on their contents." He continues to say that it is nonsense to give 200 to 300 cc. of the artificial serum and consider that all that is necessary has been done. In extreme cases of acute anemia the too empty vessels must be filled at once and intravenous injection is exactly suited to that emergency. Even when the hemorrhage has been so severe that the functions of life seem to have ceased, the injection of the serum may prolong life for three or four hours, a result not to be disdained, as a small percentage of those cases may recover."

It is my purpose to give here my own experience rather than to burden you with extended quotations or abstracts from the scant literature of today.

The chief question in a given case always is: What is the departure from the normal physiological condition that may or may not demand transfusion? Is it surgical shock as defined by Mummery "a condition produced by exhaustion of the vasomotor centers and the resulting great fall of blood pressure?" Is it a similar condition, called collapse, brought about by the lowering of the blood pressure from hemorrhage? So far as I have been able to reason, these definitions are so alike in their meaning that it is hardly worth the while to discuss the difference, for after all they both demand stimulation of the nerve centers.

So, also, in cases of toxemia, of any character, having as their etiology defective kidney excretion, or those due to toxic elements otherwise introduced into the current of the blood. The case demands stimulation of the nerve centers so that the excretories may be stimulated to perform their functions.

Now, the physiological or normal saline solution is the remedy, for not alone does it stimulate the glandular system through the nerve centers, to renewed action, but in toxic conditions it dilutes the toxic blood so that its effects are less disastrous. It acts locally as well as in a general way. In conditions of loss of blood it also supplies the loss so that the heart performs its function with more uniformity and force, as is evidenced by the change from a weak and rapid pulse to one more uniform and of greater volume.

As a prophylactic agent I have used it in preparing patients for the ordeal of surgical operations, almost in fact in a routine way. I here quote from my own article entitled, "Preparation of Patient for Abdominal Section and Treatment of the Case," as it appeared in the *St. Louis Medical Review*, January 23rd, 1904. "From observation of my own cases and others I am inclined to believe that in our zeal to get the intestinal tract free from fecal matter, hyper-catharsis is obtained to the great detriment of the patient's strength. Particularly is this due to the use of epsom salts in large doses. This applies particularly to cases in which quite an amount of blood may be lost, as in hysterectomies, myomectomies or salpingotomies." In order that we may be forearmed, "on the morning of the operation, one, two or three hours prior thereto, a copious soap-suds enema is given for the purpose of the removal of the remaining fecal matter, so that should it be desired to give a copious saline enema in case of shock from great loss of blood or otherwise, you have a better absorbing surface in the colon." In this same article I called attention to the efficiency of large quantities of water taken by the mouth for the purpose of preventing prolonged anesthetic emesis. It not only does this but it also tends to refill vessels that have been robbed of their fluid element by the previous catharsis.

Since the above was written it has been my practice, after prolonged intra-abdominal operations, whether much or little blood has been lost,



FIG. 2.—Mode of snipping vein to admit nozzle of transfusing tube.



FIG. 3.—Nozzle tied in vein.

to inject into the rectum from one to two pints of normal saline solution. The indication for this procedure has most frequently been a weak and rapid pulse and not alone the quantity of blood lost.

In puerperal eclampsia, which after all is simply a symptom of profound toxemia, there is no better remedy, to my mind, than the introduction of normal saline solution into the vein. I would by no means lessen the importance of injecting into the cellular tissue beneath the mammary glands or elsewhere, but, for the reason that we want quick and definite action, I prefer the intravenous injection. In these cases it is best always to open a vein for the purpose of lessening the quantity of the toxic blood in the circulation and then supplying the quantity taken, by normal saline solution which, as has been stated before, dilutes the toxins and renders them less potent while it stimulates glandular excretion.

In order to illustrate its action I here relate a case. I was called by Dr. W. G. Moore, to transfuse a lady suffering with puerperal eclampsia; pulse about 150 and very weak; bladder had been catheterized a few minutes before my arrival with the result that no urine was found, indicating suppression of urine. I opened the median basilic vein and withdrew ten or twelve ounces of blood, and while I still had the vein open I injected about thirty ounces of normal saline solution, with the result in fifteen minutes, of a pulse of 100 and a bladder from which I withdrew with the catheter sixteen ounces of urine. While this patient died the following day, I am satisfied the normal saline injection was indicated. In this case adrenalin was not used.

Not having kept my notes as I should have done, I am unable to state definitely how often I have used intravenous transfusion, but from memory and from some notes I will mention a few cases. Mrs. W. H. P., a case of double pus tube in which there was a profound septicemia. The vaginal route was chosen in this case on account of the septic condition of the uterus as well as the tubes. The patient lost but little blood but within twenty minutes after being put to bed, had a weak and very rapid pulse and shallow breathing. Transfused two pints of normal saline solution. Patient had pulse of 160; recovery.

Mrs. A. A., extra-uterine pregnancy with severe intra-abdominal hemorrhage. Operated March 18, 1901. Two days later, temperature 99, pulse 150. Air hunger to marked degree, dimness of vision, patient thought to be dying. Intravenous transfusion of three pints of normal saline solution. One-half hour afterwards pulse 102, respiration twenty-four. Two days later pulse again weak and 160 per minute, jerky respiration, patient said she knew she was dying. Transfused two and a half pints normal saline solution. Patient recovered.

Mrs. R., age 56; abdominal hysterectomy for large fibroid that had undergone degenerative changes. Patient did well till third day after

operation, when pulse suddenly became weak and very rapid. Transfused three pints. Patient quickly became delirious and suddenly died and, I fear, of rupture of cerebral artery. In this case there was a perceptible arterio-sclerosis of radial artery. Did not succeed in getting an autopsy.

Mrs. F. S.; extra-uterine pregnancy; opened through the vagina; hemorrhage terrific. Intravenous transfusion done by Drs. Howard and Nevill while I abandoned the vaginal route and opened the abdomen and removed the foetus and ligated the vessels. Patient recovered.

Mrs. B., abdominal hysterectomy for large myoma. Patient had been bleeding for two years; hydraemia to a marked extent. Two days later, at one o'clock P. M., pulse 128 and irregular. Transfused two and a half pints normal saline solution, pulse and respiration improved, but an hour later patient had a severe chill and went into collapse. One-thirtieth grain of strychnia was given and in a few minutes 15 drops of adrenalin chloride hypodermically. This was repeated every two hours. At ten o'clock P. M., same day, pulse could not be felt and patient was again transfused two and one-half pints. Just prior to this last transfusion patient said she could not see and felt that she was dying. This last transfusion was followed by jerky and labored respiration and she appeared to be suffering with oedema of the lungs, caused in all probability by too large a quantity of the solution that had passed from the right cardiac ventricle into the parenchyma of the lung. These distressing symptoms passed off after about an hour and the patient recovered. I could mention more cases but the above are enough to illustrate the results.

My object in mentioning these cases is: First, to draw attention to the fact that in plethoric subjects suffering with puerperal eclampsia it is first necessary to abstract a part of the toxic blood and then dilute with normal saline the remainder, thus diluting the blood overcharged with the toxins. That such is the result there is no doubt. Second, that in cases of exhaustion after serious surgical shock, with or without the loss of blood, it stimulates glandular tissue through the central nervous system. Third, that the introduction of large quantities of water either by rectum or mouth as a prophylaxis to shock exhaustion, is advisable.

My experience with adrenalin in conjunction with normal saline solution is limited to one case. As an adjunct I think it is valuable as by its action the vasomotors are held in check and the intravenous saline solution equalizes the circulation. I have used the camphorated oil in three cases, I have of course also used the strychnia.

I have used normal saline in the abdomen following abdominal sections and I am sure with good effect. In conclusion I wish to sound a note of warning against too large quantities into the veins for fear of rupture of the vessels or fatal edema of the lungs. I believe that many lives are daily lost both in obstetric and surgical practice on account of the non-use of this valuable life saving agent.

Linnmar Bldg.

OSTEITIS DEFORMANS.*

BY MALVERN B. CLOPTON, M. D., St. Louis, Mo.

Although similar conditions in bones had been previously described and variously called by different authors—indeed, the term “osteitis deformans” was first introduced by Czerny in 1873 to describe a case of spontaneous curving of the lower legs, it remained for Paget, in 1876, in his paper “On a Form of Chronic Inflammation of Bones” to first describe the disease entity as we now understand it, and to give a full clinical history of five cases of his own. After this first paper, Paget saw and reported 23 cases, and his name very properly became established in its nomenclature. There have been some 75 true cases of this disease reported to date; about 20 of them are from America, most of them from England, some from France, and a few from Italy, Austria, and Germany.

It is a disease occurring in middle life, attacking many bones, producing a peculiar softening and bending of the osseous system without impairing the general health or affecting the viscera. The course is chronic, lasting from five to eighteen years, and never the direct cause of death. The deformity, however, as it progresses, makes the patients more and more helpless until in extreme cases they become bedridden; being usually of advanced age, they are susceptible to the intercurrent affections which cause death. About two-thirds of the cases are in males, and the average age of onset is about fifty years. One case reported began at twenty-eight and another at thirty-two, while one was eighty-two years of age at date of onset. There is no hereditary influence, and the disease, as far as can be found, has no connection with syphilis, gout, rheumatism or tuberculosis, but is probably a general disease which has its principal lesions in the osseous system, and is due to some disturbance of nutrition of undetermined origin. It is generally agreed that there is no definite relationship between this disease and the nervous system. There have been a few far advanced, helpless cases that have shown degenerative conditions in nerve trunks and the spinal cord; these have given weight to the nervous theory. Experimental division of the sciatic in dogs has been followed occasionally by bony enlargement of the lower extremity, but this is not a constant finding.

As the joints are rarely affected in Paget's disease, we must look for typical changes in the shafts of the long bones. These have been studied by several observers. Paget laid chief emphasis upon the inflammatory absorption of bone associated with the formation of lacunæ. He believed the fibrous character of the bone marrow to be due to the long

*Read before the St. Louis Surgical Club, December 13, 1905.

duration of the inflammatory process and called attention to the large blood vessels and increased vascularity.

Stilling, in reporting three cases, states that the disease begins beneath the periosteum and gradually involves the center of bone with the formation of Howships lacunæ, Haversian spaces and perforating canals. In these changes he believes the disease is similar to rarifying osteitis, but in addition to the absorption, as in all chronic inflammation of bone, there is a new formation of bone, partly in marrow and partly beneath the periosteum. Absorption gets less as new formation continues, and thus the bones become thickened. As the new formed bone remains uncalcified for a long time, it yields to pressure and bends. There may be areas of calcification irregularly placed throughout the bone, and cysts containing cloudy contents may also appear. Von Recklinghausen believes that the beginning is an osteomalacia with marked reduction of the cortex which allows the bone to bend, followed later by an inflammatory process developing in the malactic areas, which is characterized by the formation of fibrous tissue.

Steele, studying a typical case, believes that there is an absorption of the compact substance causing an enlargement of the Haversian canals. There is a formation of new bone which runs diffusely through the affected and the adjacent healthy portions. This new bone remains uncalcified and is in turn resorbed. The medullary substance is converted into a vascular connective tissue containing fat cells, giant cells and leucocytes. Attention must be drawn to the fact that the deposit of new bone does not occur on the side of the concavity, where it would, if it followed the dynamic law, but it is along the convexity of the bone and along the normal ridges.

The clinical picture of an advanced stage of this disease is most easily recognized. The stature is greatly decreased, the spine curves in a long bend forward, the thorax becomes misshapen, the much enlarged skull with the apparently smaller face protrudes in a peculiar manner as if too heavy for the cervical vertebræ and hangs close to the chest. The tibiæ bow forward and the femora outward; the pelvis becomes broader and the bandy-leg effect is much accentuated. The height of the patient in consequence of the curving of the bony supports is lowered oftentimes as much as a foot, and the arms then appear to be much too long. The whole picture is most impressively simian. The bones most frequently affected, in the order of frequency, are the skull, tibiæ, femora, pelvis, spine, clavicles, ribs, and radii. While the disease is usually progressive, it frequently does not involve all the bones, and in some cases it seems confined to one or few bones for many years. Fractures are not infrequent, and in many instances draw attention to the condition. Pain in the bones is found in certain cases and entirely absent in others, and some cases suffer pain only when in motion, particularly those with



CASE 1, FIG. 1.—Showing formation of lacunæ and irregular cyst-like space with a thickening of the bone, and marked bowing forward. Fibula normal. Left leg.



CASE 1, FIG. 2.—Showing outward bowing of left tibia with extra deposit on the convexity.
Practical disappearance of all old bone tissue in center and upper parts of tibia.
Right tibia and fibula practically normal.

marked spinal curvatures. There is a certain number of cases of Paget's disease that later on developed sarcoma of the bones, usually of the giant celled variety.

In differentiating this disease, osteo-arthritis and rheumatoid arthritis can usually be eliminated, because Paget's disease rarely attacks the joints. However, there is frequently limitation of motion due to the mechanical interference of the bony overgrowth outside of the joints, which might lead one in a superficial examination to believe that the joint itself is involved. Some writers, however, are inclined to believe there is a connection between these chronic rheumatisms and Paget's disease. Acromegaly involves the bones of the face, hands and feet, portions of the body rarely or never attacked by osteitis deformans; besides in acromegaly there is an accompanying increase of the adjacent soft parts, while in osteitis deformans the hands and feet are rarely affected and the enlargement of the head is due to the increase and thickening of the skull bones.

Osteomalacia is a disease occurring earlier in life, affecting the pelvic bones particularly, but also the long bones, in which there is no subsequent deposit of lime salts, nor is there the same thickening of the shafts or enlargement of the head.

Hypertrophic pulmonary arthropathy is a disorder characterized by an enlargement of the hands and feet, or ends of the long bones, particularly of the forearms.

Rachitis is a disease of infants involving that portion of the bones where growth is proceeding and is not accompanied by an irregularity of the surface except on the cranium. Hypertrophies, either simple or due to excessive blood supply, or from local inflammatory processes, can be distinguished. A large proportion of these cases of Paget's disease develop in connection with the arterio-sclerosis and anything that will be of value in such a condition might influence the course of the disease. Otherwise treatment is of no avail.

The cases I have to present are two. One I saw with Dr. Mudd, in April, 1904, a woman of 56 years, the mother of several healthy children, still menstruating and in otherwise good health, who had noticed for the previous year pain in her left ankle and knee and in the shin bone. Twelve years before she had noticed the left leg enlarging, and it progressed for about a year, without much discomfort, when it stopped enlarging and has not increased much since. There has of late, however, been noticed a bowing of this leg and a slight limp has developed. Walking has been more uncomfortable for the past five or six months, mainly on account of the subsequent pain in the knee and ankle, which she ascribed to rheumatism, having noticed nodes on the joints of her hands for several years. The phalangeal joints show a slight enlargement, due to osteo-arthritis. An examination showed the left tibia bowed forward

and slightly out, and a slight change in the lower end of the femur, making it impossible to bring the knees together by two inches. There was a slight shortening of the whole left limb. Otherwise no other skeletal change was made out. There was no skin change or reddening over the tibia. Six months later I saw the patient and found an increase in the tibial curve on left side, and learned that locomotion had become more and more difficult. On the right side a thickening of the tibia was becoming evident and there was slight pain in the bone. Except for this change there was no apparent progress of the disease.

The second case was a woman of 72 years, with a fracture of the left femur at its middle, whom I was called to see in February, 1905. While descending a small flight of steps she had stumbled and broken her thigh. The fracture was oblique in the shaft of a bone that was bent two inches out of line, bowing forward. The opposite femur likewise was bowed and showed an increase in its diameter, though not so much as in the broken leg. The tibiæ were bowed forward and much thickened. She suffered very little pain from the break, and had practically no pain in her bones previous to my seeing her. There was no evident change in the pelvis or other bones except the clavicle, which was much curved, but not thickened greatly. Her injury prevented a study of the changes in the back. She was put in a Hodgen splint and at the end of six weeks there was quite a strong fibrous union in the fracture. At this time she developed a hypostatic pneumonia and died after three days, six weeks from date of injury.

Her past history could not be well obtained, but it was learned that she had been an alcoholic for years, but had been able to live in her squalid quarters doing her own work. She had several grown children, who were healthy, and they said that their mother had been well except for a pelvic trouble, which I judge to be prolapse of the uterus, although when I saw her it was not evident. An autopsy was refused.

The skiagraphs of the first case show clearly the bony condition which is typical of Paget's disease. The change is confined to the shaft of the tibia, which is one of the first bones involved, and it is seen that the fibula is normal. In the second case it was impossible to get a skiagraph.

Humboldt Bldg.

REPORT OF A CASE OF TRAUMATIC DIPLEGIA—
OPERATION—BENEFIT.*

BY WILLIAM S. DEUTSCH, M. D., St. Louis, Mo.

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Surgeon to The Jewish Hospital.

The case which I present this evening I feel merits our consideration because it demonstrates what surgery can do for this class of cases when they are brought early to the operating table. In this case even after a lapse of almost two years following the injury, it became possible to benefit the patient materially.

On July 27th, 1905, J. W., aged 41, married, came under observation during my service at the Jewish Hospital, complaining of intense headache, which he hoped to have relieved by surgical intervention. The patient gave the following history:

Family history, mother died of phthisis; father living and healthy. Other family history negative.

Personal history, On Nov. 28th, 1903, while coming up the hatchway of a ship, struck his head forcibly against a rafter, which caused him to fall to the floor. He claims to have retained consciousness, but immediately after the accident was unable to move either of his limbs, could not articulate correctly, and that his vision was greatly affected. Defecation voluntarily was impossible and catheterization of the bladder was necessary for about five months. A yellowish discharge was noticed from both ears. The patient remained in bed for three or four months and the ability to move his extremities gradually returned and in the course of time he was able to walk, but with a limping gait. The improvement became especially noticeable in the right upper and lower extremities, but has always remained poor on the left. Since receiving the injury the patient complained of continuous and severe headache, which in the beginning was rather general, but for the past year has been confined to the right side of the head. Bending forward, coughing or sneezing increased the severity of this headache. All therapeutic measures, anti-luetic not excluded, were tried without relief. The patient distinctly states that during all of these months he had no convulsions and never lost consciousness.

Physical examination—Heart of normal size, no murmurs, no accentuated sounds, heart beat somewhat accelerated. Abdominal organs normal.

Urinalysis—Light amber, specific gravity, 1028; acid reaction, no albumen or sugar. Microscope shows neither casts nor pus.

I asked Dr. W. W. Graves to examine the patient with me and the following is his report of the neurological findings: The shaven head

*Read before the St. Louis Surgical Club, January 10, 1906.

shows a small irregular scar at a point about two inches above the insertion of the right ear. There is a well marked fissure, beginning at a point about one inch above and one inch anterior to the insertion of the right ear and extending across the vertex to a similar point on the opposite side of the head, but becoming less defined about the median line. The fissure is independent and behind a slight depression which is evidently that of the coronal suture. The skull in the right parietal regions is extremely tender on firm pressure and this tenderness covers an area about the size of the palm of a hand, and extends slightly beyond the median line. The scalp is not thickened and to the palpating finger differs in no manner from the adjacent parts. The percussion note within this tender area is notably duller than on the opposite side, particularly so over that portion of the skull corresponding to the middle and upper Rolandic area. Patient shows no speech defect. He understands what is said to him, has no trouble in uttering the most difficult words nor any difficulty in naming various objects. He can read, and reproduction of subject matter is normal. He is also able to write both from dictation and from copy. Mentally the individual is normal. Pupils are of medium dilation and react in a normal manner. There is slight nystagmus when the eyes are in extreme position laterally, more marked on the right. Facial innervation is symmetrical and the tongue is protruded in the median line. Hearing slightly defective in the left ear, otherwise, cranial nerves show normal function. With feet approximated and eyes closed, no disturbance of station. Patient's gait is spastic, more marked on the left than on the right. In walking he carries left upper extremity in the position of adduction at the shoulder, flexion at elbow and wrist, with fingers slightly separated and extended, and the toes of both feet drag the floor, but more on the left than the right. Patient is able to make all necessary movements with the right upper extremity but outward rotation at the shoulder is defective. Whereas, with the left only slight flexion of fingers, flexion at elbow and abduction at shoulder is possible. Patient can elevate both shoulders in a defective manner, the right better than the left. The movements of the right upper extremity are slow and with deficient strength, and passive movements reveal a spastic condition, especially in pronators. Passive movements of lower extremities reveal spasticity in the adductors, quadriceps-extensors and calf muscles, more decided on the left than on the right. Tendon reflexes are uniformly exaggerated, more marked on the left than on the right. Patellar and ankle clonus present on both sides. Babinski's and Oppenheim's reflexes present on both sides. Cremasteric reflexes present but very weak. Abdominal reflexes absent on both sides, in all divisions. The sensations, touch, pain and temperature show hypoaesthesia on the left and hyperaesthesia on right. Stereognostic sense not disturbed on either side.

Otological examination made by Dr. M. A. Goldstein gave the follow-



FIG. 1. Characteristic pose before operation.



FIG. 2.—Dotted lines showing area of dullness and pain.

ing: Tuning fork and watch tests both by air and tone conduction indicate impaired function of the auditory nerve on left side. Renne's test is positive test, and Weber's test verifies Renne and other tone conduction with tuning fork. Inspection reveals a decided retraction of left membrani tympani. The malleus is very prominent, the lustre of the drum membrane is impaired. There is a circumscribed marked opacity of the posterior inferior quadrant, either cicatricial or calcareous in character.

Dr. Henry Wolfner reports ophthalmoscopic and other eye examinations negative.

After studying the history of the case as presented it became apparent to me that an operation might benefit this patient. From the findings we have a positive evidence of an injury as portrayed by the fissure in the skull, local tenderness and dullness on percussion of the trauma, no involvement of any of the cranial nerves and with the presence absolute of disturbances in both motor areas, I had to conclude that I was dealing with a lesion, most likely a hemorrhage or its results, of the convexity, and especially of the motor areas. I took it that improvement after the injury, in some respects, of the patient was an attempt at absorption of the results of the hemorrhage, but that there must still remain enough of a lesion to account for these pressure symptoms. Dr. Graves agreeing with me that an operation was indicated and with the salient points of the history before us, viz.: that we found a positive fissure in the skull, a localized area of tenderness corresponding accurately to the location of the headache of which the patient complained, the dullness on percussion at the same place, I felt that an attack at this point and a thorough exploration of the Rolandic area on the right side was indicated.

On August 8th, 1905, twenty-one months after the injury, I operated. Under ether anesthesia and assisted by Drs. S. E. Newman, W. M. Robertson and D. C. Goodman, I made the usual incision, oval in shape, with the convexity towards the crown, and its pedicle towards the base, and carried it down to the periosteum. The flap bleeding, no more than usual, was arrested by forceps and ligature, the forceps removed as soon as possible to do away with pressure on the scalp tissues as much as possible. The periosteum with its overlying parts was then detached from the bone with a periosteal elevator, and the entire flap turned down and covered with warm saline cloths. With all bleeding arrested the motor area was sought for and the largest circular trephine applied. The skull, besides being somewhat thicker than usual, offered no impediments, nor showed any peculiarities, and a large button was rapidly lifted out. At once the attention was directed to a bulging into the opening of a dark mass, not pulsating to the finger. With the DeVilbis and Rongeur forceps the skull opening was now materially enlarged, and since the same bulging continued, a second button was removed, and the two openings

connected by a wide groove. It was now apparent that we had to deal with a mass that was fluid and one that was putting the dura on the stretch. With a finely pointed eye scissors the dura was incised and at once a quantity of bloody fluid escaped, allowing the dura to retract and flatten out. The gush of blood was enough to at first frighten me into believing I had cut into the longitudinal sinus, but my fears were soon allayed when after careful sponging I found I had opened a distinct cavity containing blood. After some little cleansing of the territory with a warm saline solution I replaced the flaps of the cut dura and united them with one fine silk suture. When the skull opening had been enlarged in all directions with a Rongeur forceps so as to relieve any possible pressure, the scalp was replaced and sutured in the ordinary way and a firm dressing applied.

The patient was returned to bed with a fair pulse and no apparent effect from the operative procedure. I had not yet left the hospital when the nurse reported that my patient was having a severe convulsion, which lasted about five minutes. During the first twenty-four hours following the operation the patient had thirty-six convulsions lasting from one to six minutes, showing the following type. Twitching of facial muscles on the right with head and eyes turned to the right. Twitchings in left shoulder and left arm with short period of unconsciousness. These convulsive seizures grew less frequent each day, ceasing after the fourth day, and the patient since then has had no convulsions. The patient made an unusually rapid recovery from the operation, the wound healing by first intention and it was difficult to induce the patient to remain in bed after the seventh day, for he claimed to be feeling well. From the tenth day, with a simple cap dressing he was allowed gradually to get up. The slight facial paresis on the left side, which was noticed after the first convulsion, evidently an exhaustion paresis due to the convulsive seizures, and which affected particularly the muscles of the left side of the face, disappeared.

On examination of the patient's nervous system on October 14th, Dr. Graves reports as follows: No longer local tenderness in right parietal region. Condition of left upper extremity, as far as motility is concerned, slight improvement in this, that the patient is now able to flex his fingers, and flexion and extension of elbow, abduction and adduction of shoulder much improved. The rigidities in the muscles of arm and forearm much less. In walking, patient is still somewhat spastic, but the toes no longer drag the floor. Spasticity of left lower extremity much less than before the operation, and muscular power to resisted movements in the formerly paretic muscles greatly improved. The tendon reflexes of upper and lower extremities still greatly exaggerated. Babinski's and Oppenheim's reflexes still present on both sides. Abdominal and cremasteric reflexes same as before operation. The usefulness of the right

upper and lower extremities show decided improvement. Headache, which was the patient's main object in seeking relief, has not been present since the operation.

To sum up then, I feel gratified with the results of the operation, since the patient is improved in many ways. The headaches, which were the bane of his existence, have been entirely relieved. His power of locomotion is much better, and he is now able to get around very well. He is in good humor and says life is now worth living. I had intended showing you the patient this evening, but he left a week ago for his home in Arkansas and I am not able to do so.

I wish to thank Dr. D. C. Goodman, interne at the Jewish Hospital for the valuable notes taken of the case before and after the operation.

PLEMPIUS OF LOUVAIN.

By JAMES MOORES BALL, M. D., St. Louis.

Among our readers there are probably few who remember to have heard of Plempius. Yet in his day he was a power, a leader in medical thought, a powerful antagonist in argument, a philosopher, a great teacher, and a seeker after truth who was open to conviction. If his views cause us to smile in superciliousness and scorn, let us remember that two hundred years hence our great men of today may meet the same fate. He was wise in his day and generation; so, perhaps, are we—but who can say that our deductions are correct, our ideas exact, our so-called science immutable?

Like many another man prominent in the history of medicine, Plempius is remembered chiefly for having been on the wrong side of an argument.

Born at Amsterdam on the 23d of December, in 1601, he was educated in the humanities at Gand, in philosophy at Louvain, and in medicine at Leyden, after which he passed into Italy for post-graduate instruction at Padua and Bologna, receiving the degree of the latter university. Returning to Amsterdam, he began the practice of medicine. In 1633 he was called to the chair of medicine in the University of Louvain. He died in that city in 1671. Such is the brief record of his life as found in Dezeimeris' *Dictionnaire Historique de la Medecine Ancienne et Moderne*. It omits the most important episode in the life of Plempius—viz., his controversy with Descartes regarding the circulation of the blood as announced by William Harvey. When Harvey announced the discovery of the circulation, he met with the greatest opposition. He was denounced as an imposter; the Latin word "circulator" (a quack) was applied to him; his practice fell off; the vulgar regarded him as crack-brained, and all the physicians were against him.



The medical world was not prepared to believe that the blood undergoes a ceaseless circular motion with the heart as a propelling power. Primrose of Scotland, Parisanus of Venice, Hoffman of Nuremberg, Vesling of Padua, and others fought the Harveyan doctrine. Harvey, however, was not to battle unaided. Rene Descartes, the celebrated philosopher, in 1637, nine years after the discovery was announced, said: "But for an explanation of the reason why the blood of the veins is not exhausted by passing continually into the heart, I must refer to the work of an English physician, to whom belongs the honor of having first shown that the course of the blood in the body is nothing less than a kind of perpetual movement in a circle."

Plempius answered Descartes. At first he could not believe the ancients to be wrong. He began to reason and to experiment. He went over Harvey's work step by step. He made the same experiments, repeated them time and again, arrived at the same conclusions, and decided that the ancients were wrong, and that Harvey's doctrine was the truth. Then he had the manhood to say:

"This discovery did not please me at all at first, as I publicly testified both by word of mouth and in my writings; but by and by, when I gave myself up with firmer purpose to refute and expose it, lo! I refute and expose myself, so convincing, not to say merely persuasive, are the arguments of the author; I examine the whole thing anew and with greater care, and having at length made the dissection of a few live dogs, I find that all his statements are most true."

This indeed is the language of an honest man, and such was Plempius of Louvain.

TWO UNUSUAL CASES OF TUBAL PREGNANCY.*

BY CHAS. H. DIXON, M. D., St. Louis, Mo.

The condition of ectopic pregnancy is much more frequent than is usually supposed. There has not been the attention directed to this condition during the last few years as has been to other troubles. If so, I am sure more cases would be reported and a number of pelvic troubles could be traced to this condition.

There has been little new written on the causes of this condition, some contending that it is due to some changes in the tube while others again say it happens in conditions which are normal.

Mrs. B., age 34, Sept. 24, 1904; nativity United States; housewife. Family history, negative.

First menstruation between 13 and 14; regular; painful at beginning, duration, four days; not very profuse; married at 24; Conceived two

*Read before the Surgical Club, December 13, 1905.

months after; labor normal, nursed baby; menstruated at fourth month following labor, regular, not painful, duration, four days; no leucorrhœa. Had three subsequent conceptions with normal labors; no miscarriage. At the second labor she had seven post partum hemorrhage, otherwise the labor was normal. Has four children living, ages ranging from eight years to two years and nine months.

Three years ago she had a cystitis, but knows of no cause; has had painful micturition off and on since that time. No leucorrhœa, back-ache or painful menstruation, always menstruated at third or fourth month following labor. Nursed all her children.

Menstruated regularly from May, 1902, till Sept. 1, 1904, which period she missed. On Sept. 14th, she noticed a slight flow of blood which commenced with a severe pain lasting a few hours, starting in region of rectum and extending towards the stomach, accompanied with nausea. Eight days after had another severe attack of pain coming on suddenly of the same character and location as the former attack, only more severe; flow was continuous but no increase. Two days later pain was general over abdominal cavity. Examination showed slight rigidity of muscles over right inguinal region, flatness on percussion and some soreness; vaginal examination showed large swelling, soft and painful on the right side extending posteriorly.

Sept. 26th, had another attack of pain early in the morning, more severe than the preceding ones, but of same character and location; pulse fast and weak, face blanched. She had been removed to hospital the day before operation, and a few hours later the cavity was full of blood, the bleeding from right tube. Recovery uninterrupted.

May 22nd, 1905. Was called again to see patient; found her suffering from pain in left side, paroxysmal in character. Says she menstruated October, 1904, December, 1st and 26th, 1904, January 9th, February 1st, March 1st, March 18th and April 13th, 1905, since which time the flow has continued. Has had none of the usual symptoms of pregnancy. No pain at any menstruation except April 13th, was curetted on May 12th, but flow did not cease. Examination showed large swelling in left pelvic region, pointing downwards, painful and soft, uterus slightly enlarged, pulse quick and weak, no temperature. Some rigidity of muscles over left side. Removed to hospital at once. During that night had severe attack of pain accompanied with nausea and fainting. Operation showed rupture of left tube; had first extended downwards into meso-metrium, last one into abdominal cavity. Tube removed. Recovery uninterrupted.

Mrs. M., age 21. Nativity, United States. white, housewife. Family history, negative. Personal history, always has enjoyed good health. First menstruated at age of eleven; menstruated every five or six weeks, lasting six days; for three days flow was profuse, no clots and but very

little pain. Never missed a period. Never had any uterine, ovarian or vaginal trouble that she is aware of.

Last menstruation was October 19th to 25th; normal in character and quantity. Was married November 8th, 1905, used vaginal spray to prevent conception. Enjoyed good health till November 23d, when she noticed a slight discharge of blood, preceded by a severe pain extending low into the rectum; pain continued more or less all night, easier in morning and quite comfortable till the morning of November 28th, up to which time flow was continuous but slight. On morning of November 28th, was taken with violent pain in right side extending low into the rectum; there was nausea and faintness, extreme pallor of face and cold extremities. About three hours after attack, found patient cold, clammy perspiration, pulse weak, irregular, intermittent, barely perceptible at times; impairment of vision, rigidity of muscles over right inguinal region with some flatness and pain; temperature, subnormal.

Vaginal examination showed bulging to right and posterior to uterus; could detect no enlargement of the uterus. Operation four hours after attack; found cavity full of blood; tube slightly enlarged and oozing through the everted fimbriated extremity of tube; nodular in two places. Tube removed, recovery uninterrupted.

I have had seven cases of tubular pregnancy in the last year, fifteen cases altogether, with one death, which was my first case. They have been all on right side except one in which there was the secondary pregnancy. In most of them there has been rigidity of muscles over side of the trouble, although the absence of rigidity is given as a sign of distinction between this trouble and appendicitis. The choice of operation was through the abdominal cavity.

CLINICAL REPORT.

ACUTE DILATATION OF THE ARCH OF THE AORTA.

By W. J. CALVERT, M. D., Columbia, Mo.

Mrs. B. White, American, age sixty, came to Parker Memorial Hospital medical service for treatment. In this consideration the history of the case and a complete description of her condition are unnecessary. In addition to her nervous condition, many of her symptoms pointed to a carcinoma of the stomach, but neither a tumor mass could be felt nor stomach washings obtained. A small nodule appeared in the skin over the left clavicle, the removal of which, under cocaine, was the immediate cause of the findings to be described.

Physical examination on admission was negative save as follows: Radial arteries hard; right radial pulse preceded left radial by slight interval; heart was moderately enlarged with strong apex beat; rough systolic murmur in aortic region which was not transmitted to arteries of the neck; loud blowing diastolic murmur of aortic insufficiency, but heard in third left interspace at edge of sternum, also, in second right interspace and at apex of heart, not well heard over lower portion of sternum. Systolic murmur heard at mitral opening, transmitted to axilla. Second aortic sound was ringing in character. No abnormal pulsations or other murmurs or areas of dullness could be found. An aneurism of the arch was considered but the signs were not deemed sufficient to warrant a positive diagnosis.

When the nodule over the left clavicle became about one-fourth of an inch in diameter, the patient was persuaded to have it removed under cocaine. Sections showed a carcinomatous growth. During the operation, marked pulsations of the large vessels and a softening of the under portion of the clavicle were noted and the presence of an aneurism discussed. A physical examination was made a few hours after the operation.

Physical examination: *Inspection*—Marked systolic pulsation in first and second intercostal spaces at right border of the sternum; marked heaving pulsations at upper border of sternum, with the groove behind it completely filled. Heaving apex pulsation. Arteries in neck showed marked pulsation. The heart beat could be seen over the entire thorax. *Palpation*—Shock of the heart beat could be felt over the entire thorax. Rough thrill at apex and in first and second interspaces to right of sternum. Apex beat heaving in character. Behind and on a line with upper border of sternum, a hard pulsating, expansile tumor mass could be felt. Tracheal tugging was very distinct. No pulsations to left of sternum in first and second interspaces were noted. Radial pulses were stronger and a few beats per minute faster than formerly. The left distinctly slower than the right. *Percussion*—Heart dullness slightly to left of nipple line, not elicited to right of sternum. At the upper right margin of the sternum, an area of relative dullness semicircular in shape was found, the border of which began at the union of the right third cartilage with the sternum, coursed upward and to right to a point on the second cartilage about one

inch from right border of sternum, thence upward and toward the mid-sternal line to the upper border of the sternum where it was lost. No dullness could be detected on left edge of the sternum. *Auscultation* unchanged save sounds were louder than formerly.

At this examination no doubt of the presence of an aneurism existed. The patient said that her heart seemed to be coming out of her thorax.

I felt somewhat guilty for having overlooked the aneurism and frankly confess that I had failed to make a diagnosis.

Signs noted—(1), difference in radial pulse; (2), pulsations in first and second interspaces and supra-sternal notch; (3), tracheal tugging; (4), dull area over aorta.

On the next day I was again surprised to find almost a complete change in the physical signs.

(1), The radial pulses were as first described; (2), the pulsations in first and second interspaces had almost disappeared. The tumor mass which filled the groove at upper border of the sternum had receded and could be felt with difficulty; (3), tracheal tugging could not be detected; (4), the dull area over the aorta could no longer be found.

Repeated examinations failed to reveal the findings of the day of the operation. An acute dynamic dilatation of the arch of the aorta had occurred.

The clinical picture finally terminated. An autopsy was denied.

In this case the dilatation of the aortic arch may be explained as follows: (1). The extreme neurotic condition of the patient may have played a role. (2). Two factors in the physiological action of cocaine are undoubtedly of importance. The variable susceptibility of individuals to cocaine is well known. Cocaine increases the frequency of the heart beat and contracts the peripheral arteries. Each of these factors tends to increase the blood pressure in the arteries. When the two factors are present at the same time, a decided rise in the blood pressure follows, which acting on (3), a weakened arterial wall, might easily cause a temporary dilatation.

In this case a general artero-sclerosis and most probably an arterio-sclerosis of the arch of the aorta, were present. It is also probable that there was an aneurismal dilatation. But the presence or absence of an aneurism is of minor importance in this connection. The weakened wall of the aorta from sclerosis, and the increased blood pressure are the two essential factors. Judging by the forcible heart beat, the rise in blood pressure must have been considerable.

It is to be regretted that the actual condition of the arch and the after effects of the dilatation could not be followed at autopsy. It is most probable that in this case the arch did not return to its former size.

Acute dynamic dilatation of the arch of the aorta is rarely observed. Dilatation of the arch in cases of aortic insufficiency is not uncommon. There the condition is constant for longer periods of time.

EDITORIAL COMMENT.

REFLECTIONS ON THE REPORT OF THE JOINT MEDICAL COUNCIL.

The amendment to the city charter embracing the scheme for a visiting staff, board of trustees and an executive superintendent was indorsed by the St. Louis Medical Society at the meeting of February 3d. With the complicated hospital situation in this city, it is not to be wondered at that the report as finally submitted should contain some features which are open to wide difference of opinion. It is rather remarkable that the fundamental principles concerning hospital management should have found so strong an unanimity of opinion as to become finally embodied in the proposed amendment. The minor faults of the report will no doubt be modified when the proper time comes, for it is not to be thought that this is the final draft of the measure.

In its main principles the bill is fundamentally good. A visiting staff of only average ability would be an improvement on the present method, and it is very probable that in whatever way the staff is chosen it will be at least an average one. The question of permanent appointment is, however, open to the strongest criticism, and it is questionable if the intelligent voter will support a measure embodying this feature. The best experience has shown that the members of a visiting staff should be appointed for a term of years and reappointed of course during satisfactory service. In view of the fact that a visiting staff is a new thing in municipal hospitals here, it might be well to safeguard their performance with all the features of incentive to good work that can reasonably be applied.

The question of medical members on the board of trustees is a matter which will always arouse discussion, and the root of the difference of opinion lies in the reasonable assumption that in professional matters the physician is not apt to be fair. It serves no purpose to rail at this feeling, nor to be blind to its existence. That such is the feeling both among laymen and among physicians is a proof that there must be some reason for its emphasis. The unvarnished truth is that there is plenty of evidence both in this city and in other cities that the presence of a medical man on the board of trustees of a hospital has given rise to a great deal of unnecessary trouble. One reason for this is plain, and that is that a physician on a lay board soon comes to assume an importance in medical matters which is not necessarily in proportion to his justness and sense of fair play. He is assumed to have first-hand knowledge not only on medical matters as such, but likewise in respect to the qualifications of other physicians, and against the latter there is no opinion opposed which can be considered nearly so well informed. In just this one thing lies the danger, and if we are fair in the matter we must agree that this danger is not a theoretical one. It is unwise to insist that the qualifications of medical men are the ideal ones for membership to a board of trustees, when it is certain that there is so much

danger to medicine in general in introducing into the board the very dissensions which an intelligent view of the matter would tend to remove.

It can, however, be considered an advance in the medical history of this city that the report submitted was so essentially correct on the vital principles of hospital administration, and it is the part of wisdom to support such a measure enthusiastically for the good it contains and for the betterment it promises, and to leave the minor faults to a time when they may be calmly corrected.

The question of a visiting staff to the Insane Asylum is one upon which there will be opinions of various sorts and upon which the main point is apt to be confused. The problem in asylum management in a large city is quite different from that in a small town or village. The necessity in the latter for a superintendent is obvious, and there would be no place for a visiting staff at all. In a large city with a presumably able lot of men devoting themselves to neurology and psychiatry in a clinical way, the Insane Asylum offers just the needed opportunity to work out to the utmost their own specialty. It is just this necessity for clinical work on a large scale which is ordinarily denied to the class of men referred to on account of a blind adherence to the old and clumsy system of present asylum management. The following scheme is suggested as being practicable and at the same time offering the best possible educational advantages of a large insane material: There should be connected with the City Hospital, and as an integral part of it, a psychopathic ward or wards which should be under the charge of the visiting neurologists of the hospital as a part of their routine duties. To these wards will be sent all acute mental cases of whatever form they may happen to be. Such cases will be treated as hospital patients and intelligently studied from the points of view of diagnosis and prognosis. Such wards are already in active operation in several cities, notably in Albany, New York, and there is provision made for new ones in New York City. Patients thought to be incurable, or in whom the mental disease will probably take a long time to develop and to complete its evolution, should be sent to the Hospital for the Chronic Insane, which will be the present Insane Asylum with the material now at the Poor House (that is, the insane material) included. This may or may not be in the hands of a superintendent, depending upon the exigencies of the case. The point is, and it ought to be emphasized, that any one who attempts to treat mental cases at the present time ought to be in the closest possible touch with general medicine, and nowhere else can this necessary closeness be found except in a large general hospital. The use of the present Poor House in part as a convalescent hospital for the City Hospital would be a feature of the general scheme which is here submitted.

MEDICAL AND SURGICAL PROGRESS.

INTERNAL MEDICINE

IN CHARGE OF

JESSE S. MYER, M. D.

THE RHYTHMIC SOUNDS OF THE ALIMENTARY CANAL.—Cannon (*Jl. Am. Med. Assn.*, Jan., 20th, 1906) finds that the most characteristic feature of the movements of the alimentary canal is undoubtedly their rhythmicity. Peristaltic waves pass in rhythmic succession over the stomach. In the small intestine the most usual activity is a rhythmic segmentation of the food. In the ascending colon, antiperistaltic waves rhythmically follow one another toward the cæcum. The author has listened carefully and attentively to the abdominal sounds for long periods of time and believes that it is possible to differentiate between the sounds produced by the stomach, small intestine and large intestine. By means of a telephone transmitter placed over the abdomen and activating through an induction coil a nerve muscle preparation he has secured graphic records of the sounds made by the stomach and small intestine wholly without the mediation of human judgment. The stomach sounds are best heard about an hour after a bountiful meal with the patient lying on his back and left side, and the stethoscope placed near the end of the eighth rib on the right side. The sounds heard here are loud, rattling, explosive and of characteristic quality. The rate of their recurrence varies from every seventeen to twenty-four seconds. The rhythmic sounds of the small intestines are very different from those of the stomach, being soft, muffled and sometimes a group of little rattling explosive discharges. Each sound lasts two or three seconds or more and the rhythm is persistent for some time in one place, occurring every seven to eight seconds. The sounds of the large intestine are noticed best in the right lower quadrant of the abdomen, are characterized by a succession of little popping noises and faint gurgling. These sounds indicate that the ascending and first part of the transverse colon are more active than the remainder of the large intestine. The sounds start in the transverse colon and their advance can be clearly traced. The sounds can be heard first faintly, then louder and louder, then gradually more faintly again. If the stethoscope is changed to a position farther along the small intestine the sounds can be again heard passing through the same phases as before. Whether the observation of the sounds of the stomach and intestines is to be of clinical importance will depend upon whether or not there are typical variations in different diseases of the alimentary tract. The author suggests that the method might be used to separate the somewhat vague expression, motile insufficiency, into its two factors, absence of peristalsis and pyloric obstruction.

[These observations are indeed very interesting and one who will take the time to listen carefully over the different portions of the abdomen indicated by the author, will be amazed at the differences in the quality, pitch and loudness of these sounds. I found the difference most marked when listening simultaneously with two stethoscopes, one attached to each ear, one being placed over the pylorus and the other over the cæcum.—E.D.]

A STUDY OF THE DETERMINATION OF THE GREATER CURVATURE OF THE STOMACH, WITH SPECIAL REFERENCE TO RADIOGRAPHY.—Schuele (*Archiv. f. Verdauungs-Krankheiten*. Vol XI, part 6) points out the sources of error in the ordinary methods of determining the position of the stomach, and endeavors to show that, after all, the radiograph affords us the most exact method. In carrying out these observations, the stomach was first outlined by the percussion-auscultation method, wires were fastened on the abdomen along these outlines, the patient was then given a meal containing a large quantity of bismuth and a radiograph taken. In some cases the two outlines corresponded, but in others there were great discrepancies. All in all, however, the author finds that the percussion of the full stomach in the standing position is fairly reliable. He points out the importance of using the radiograph with the patient in the standing position. In the inflation of the stomach one of the chief sources of error is the position of the transverse colon and its relations to the stomach, sometimes lying in front of the stomach and at others just below it. In either case, if the colon is inflated with gas, the percussion note over the stomach and colon will be identically the same.

THE SAHLI DESMOID REACTION.—Eicheler (*Berlin. Klin. Wochenschrift* No. 48, 1905) conducted a series of observations on some thirty patients with a view to testing the value of Sahli's desmoid reaction. This reaction is based on the fact that raw connective tissue fibres are digested in the stomach only and there when the secretions of pepsin and hydrochloric acid are relatively normal. Sahli recommended the ingestion of small rubber bags containing methylene blue, and the bags tied shut with raw catgut. As soon as the catgut is digested the methylene blue or iodoform is liberated and soon makes its appearance in the urine. It should appear within twelve to eighteen hours. If the secretions are not up to normal, then the catgut is either not digested at all and the little bags are expelled with feces, or is digested very slowly and the methylene blue makes its appearance in the urine at a much later period. Eichler found in his series of investigations that the Sahli method is very reliable and corroborated his findings by a comparison with the chemical findings in the stomach contents.

SAHLI'S DESMOID REACTION, A NEW METHOD OF TESTING THE GASTRIC SECRETIONS AND THEIR NATURAL RELATIONS WITHOUT THE USE OF THE STOMACH TUBE.—Kuehn (*Muench. Med. Wochenschrift*, No. 58, 1905) conducted a similar series of observations on some fifty-four cases and corroborated in every way the claims of Sahli. He praises the

method very highly and believes that in a large degree it can supplant the use of the stomach tube.

THE PATHOLOGY OF RENAL DROPSY.—Bainbridge (*The Practitioner*, Dec., 1905).—This is one of a series of articles on the pathology of dropsy in general and presents a very complete yet concise review of the subject. The causation of renal dropsy, though still very obscure, presents certain factors which stand out prominently in its production. A scanty output of urine as indicated by the observations of Dickenson, and by the fact that in chronic nephritis the onset of cardiac hypertrophy and increased urinary flow are often accompanied by diminution of the dropsy, the retention in the body of sodium chloride and possibly other salts, owing to the deficient excretory power on the part of the kidneys; as a result of osmotic changes, the retention of salts necessitates the retention of water as well, increased metabolism in the muscles in consequence of a partial or complete loss of control over the muscular metabolism by the kidneys, brings about the accumulation in the muscles and tissue spaces of waste products. These by a process of osmosis attract water from the blood into the tissue spaces, which cannot be carried off by the lymph channels, thus edema makes its appearance.

THE DIAGNOSIS OF PERNICIOUS ANEMIA.—Emery (*The Practitioner*, Dec., '05) discusses at length the diagnosis of pernicious anemia and considers the signs individually and in detail as follows: (a) High color index, (b) the presence of megaloblasts, (c) the presence of megalocytes, (d) leucopenia, (e) relative lymphocytosis, (f) polychromatophile, and other forms of degeneration of the red blood corpuscles. He suggests that the diagnosis is best conducted on the following lines: Determine the color index and while counting the red blood corpuscles, notice incidentally whether any appear abnormally large, larger than one-third of the diameter of the half-square on the counting machine. If the index is so high as to arouse suspicion of the disease, proceed to make a leucocyte count. If this is low, make a differential count on a stained film, keeping a sharp lookout for nucleated polychromatophile or punctate form. If there is a relative lymphocytosis the diagnosis is very probable and the film should be examined for megalocytes. The next process consists in a further careful search for nucleated red blood corpuscles whether megaloblasts or not. If all the previous signs are positive, however, the author believes that the diagnosis may be made without their discovery.

SURGERY.

IN CHARGE OF

WILLARD BARTLETT, M. D.

NOTES ON EXPERIENCES DURING THE RUSSO-JAPANESE NAVAL WAR.—S. Suzuki (*Sei-I-Kwai*, November 30, 1905).—This paper is so full of interesting narrative, as well as suggestions for the future, all of them founded upon ripe experience, that it will more than repay a perusal in the original. It is advised that very little surgery be done during the conflict. It had better be postponed, if possible, until the hospital ship, or the base hospital, can be reached. As a matter of course, the smoke, dust, and hurry incident to a battle make it almost impossible to maintain asepsis. About all that can be done on the ship is to ligate, or impress, in case of hemorrhage, clean out wounds and employ sterile dressings. It is astonishing how many shell wounds healed by first-intention, if merely the skin be united over them. This is a matter of the greatest importance, and upon which little stress has been laid.

The proper place for treating the wounded on the battleship is below the water-line, although very few ships have been properly equipped in this particular. Two such stations should be maintained, for one may be completely destroyed, as has happened.

The Japanese navy is drilled to first-aid work during peace, and this fact must be largely responsible for the comparatively low mortality among the Japanese in time of battle. Everything movable should be taken away from the exposed portion of the ship. Other objects, such as bridges and other target, should be covered with hammocks, which prevent splinters flying when these things are struck by shells. Hammocks, in addition, were found to be excellent life-preservers, and to their use many a man owes his existence.

When a steam pipe bursts, the best way to avoid scalding is by lying flat down on the deck. Before every battle the Japanese donned clean underwear, and at all times the whole body was kept perfectly protected. This latter precaution prevented burning of the skin many times, while the former, evidently, had a great deal to do with aseptic wound healing. No precaution prevented frequent deafness, following a battle, and the eyesight of the Japanese gunners was examined before every action. The reason for this is obvious.

THE CRUSHING OF GALLSTONES IN THE COMMON DUCT.—Langenbuch (*Revue de Chir.*, Jan., 1906) was the first to do this operation in 1886, although Tait had done the same thing in the cystic duct two years earlier, while others had considered the idea as early as 1858.

The author was able to collect fifty-three cases in which this had been done, and himself reports two personal experiences with it. It seems to be possible, even though the stones lie very low down in the duct and, consequently, in a position which makes them rather inaccessi-

ble. However, failure in this last-named situation must be much more common than when they are higher up. There are three ways of doing this: 1st, with the bare finger; 2d, with forceps covered with rubber; 3d, by puncture with needles. This latter, however, is dangerous and has proven fatal, and is not specially to be recommended. Whether or not a stone can be crushed depends not so much upon its situation, or the technique employed, but rather upon its own consistence. Twelve per cent. of them are too hard for the operation to be done. It is not a dangerous procedure, although one can readily understand that the mucous membrane of the duct may be torn, and an infection ensue. It would seem that a great deal can be accomplished by this manœuvre.

Of the fifty-three cases mentioned, there were apparently thirty-seven cures in three days, and in the experience of others they have been seen as late as thirty-eight days.

The two objections to the operation are, that it leaves one in ignorance as to the condition of the rest of the duct, and does not permit drainage.

JACKSONIAN EPILEPSY, WITH LEFT SIDED PARALYSIS, DUE TO CYSTICERCUS IN THE RIGHT ROLANDIC ZONE. (*Bul. de la Soc. de Chir. de Paris*, Dec., 1905.)—This most interesting recital has as its subject a boy twenty-three years of age who suddenly became unconscious two times in one week, each time recovering within a few minutes, and no ill effect left behind. Three months later he again lost consciousness, but this time with spasmodic contractions of the left arm. Then during the next five years these attacks came on every three or four months, usually occurring more than once in the same day.

Suddenly, at the expiration of this time, without any apparent reason, the left side became paralyzed and he entered the hospital. The right side of the brain was laid bare and a cyst discovered in the region above mentioned. This was removed and the patient recovered without incident. He had no more spasms, and the power to move the muscles of the left side gradually returned, until a few months later he was pronounced well. The microscope revealed the true character of the cyst to be hydatid.

MY METHOD OF GASTRO-ENTEROSTOMY.—Fritz de Beule (*Zentralblatt f. Chirur.*, Dec. 30, 1905).—This author describes an original button, planned somewhat after the idea of the Murphy button, and introduced in very much the same way. The male, or lower half of this button, is so arranged that its lumen does not run straight through it, as we are accustomed to seeing, but this tube describes a quarter of a circle, the lower end coming out at the side of the flange. In this way it will be seen that when the button is properly in place, the stomach contents can be directed in any manner desired, and this is naturally down the gut. Illustrations render this new object to the manner of its use quite plain. Twenty-two cases are cited in proof of the practical usefulness of this button. By its use, the author hopes to avoid the accidents which have, heretofore, accompanied this operation.

DIAGNOSIS.

IN CHARGE OF

A. E. TAUSSIG, M. D.

ALIMENTARY GLYCOSURIA IN INFECTIOUS DISEASES.—P. F. Zucola (*Giorn. R. Acad. di Med. di Torino*, 1905, No. 4; *Bioch. Centralbl.* IV. No. 19.)—In sixteen cases of infectious disease (pneumonia, typhoid fever, tuberculosis and the like), the existence of an alimentary glycosuria was investigated. In all the cases, 150 g. of glucose-syrup was given on an empty stomach and no further food given during the course of the observation. The urine was collected every hour and tested for sugar with Fehling's solution. In health and in cases of mild infection no glycosuria resulted, but whenever the infection was severe, especially if it had lasted for some time, the urine contained sugar. The intensity of the glycosuria corresponded to the intensity and duration of the infection. As the alimentary glycosuria coincided with an intermittent excretion of methylene blue which is known to indicate a lesion of the liver cells, the conclusion seems natural that the glycosuria also is an indicator of the functional condition of the liver cells. Prognostically, also, the test would seem to be of some value.

SAHLI'S DESMOID REACTION.—F. Eichler (*Berl. klin. Wochenschr.* 1905, No. 48.)—Sahli's test consists in having the patient swallow, soon after his main meal, a small rubber capsule containing iodoform or methylene blue and tied off with a raw catgut thread. As the medicament cannot be absorbed until the catgut has been digested, and as the gastric juice alone is able to do this, the interval until the appearance of iodine or methylene blue in the urine is a reliable indication of the digestive activity of the gastric juice. The writer has tested this method in a number of cases and pronounces it very useful, especially in patients who refuse the introduction of the stomach tube or in whom for other reasons the use of the tube is not permissible. A positive reaction within fifteen to twenty hours indicates an adequate gastric digestion without, however, giving any information as to the existence of a hyperchlorhydria. On the other hand a delayed or negative reaction indicates a weakened or destroyed gastric digestion.

NYLANDER'S TEST IN URINE CONTAINING MERCURY OR CHLOROFORM.—H. Bechhold (*Zeitschr. f. Physiol. Chem.*, Nov. 1905.)—Sugar urines to which mercurial salts or chloroform have been added to prevent fermentation, or for other purposes, will not give a positive reaction with Nylander's test. Even prolonged boiling will give instead of a black precipitate only a yellowish or brownish discolorization. The latter is probably due to the caramelization of the sugar by means of the hot alkali contained in Nylander's reagent.

BURGHARDT'S SIGN IN INCIPIENT PHTHISIS.—Van den Welden (*Beit. z. klinik d. Tuberk.* Vol. IV, No. 2.)—As is well known, Burghardt has

pointed out that in the earliest stages of phthisis, in which as yet no signs of pathologic change can be made out in the apices, it is often possible to hear, on auscultation over the base of the lung, fine moist rales. The writer has studied this phenomenon in a large number of cases. He found that in 60 per cent of his cases of beginning pulmonary tuberculosis these fine moist rales could be heard over the lower edge of the affected lung, between the mammary and axillary lines. In advanced phthisis with well marked consolidation and cough, this phenomenon is hardly ever observed. He believes it to be of some diagnostic value. Its cause is probably an atelectasis of the pulmonary tissue at the lower edge of the lung due to a diminished activity of the corresponding half of the diaphragm.

ALBUMINURIA ADOLESCENTIUM.—B. Bramwell (*Brit. Med. J.*, Oct. 7, 1905.)—During his thirty-four years service as school physician at Rugby, England, the writer has observed a great number of cases of albuminuria among the boys there. At first he was inclined to consider the occurrence of this phenomenon a serious-matter. He has, however, been able to keep many of his patients under observation even in adult life and has seen practically all of them develop into perfectly healthy men. Even where the albuminuria persisted for months or years, no ill-effects ensued, in particular no chronic nephritis developed. As to the cause of this albuminuria, he divides his patients into three classes. The first has a high blood pressure, an unstable vasomotor apparatus and a tendency to gout. These boys usually eat too much meat. The second is anemic, has a readily compressible pulse and requires better feeding. The third class consists of neurasthenics and these usually show an albuminuria before examinations, and so forth. In none of these cases did a true nephritis develop. The importance of a knowledge of this albuminuria adolescentium is evident. It does not require any interference with the school life, mental or physical, of the children so affected.

THERAPEUTICS.

IN CHARGE OF

WALTER BAUMGARTEN, M. D.

DIPHTHERIA ANTITOXIN IN THE TREATMENT OF FACIAL ERYSIPELAS.—Tomaselli (*Gazz. degli Ospedali*, 18 June, 1905; *Zentralbl. f. gesam. Therap.* 1905, p. 636) reports three cases of erysipelas which yielded within twenty-four hours to the injection of 1,000 units of diphtheria antitoxin.

THERAPY OF HEMOPHILIA.—Sahli (*Zeitschr. f. kl. Med.*, Bd. 56, 1905; *Zentralbl. f. d. gesam. Therap.* 1905, p. 661,) contends that our only well substantiated therapeutic indication in hemophilia is an effort to improve the general condition of the patient, especially by means of good and plentiful food, as an experience has pointed out. To combat superficial

hemorrhage pressure and gelatin compresses are useful, together with local applications of adrenalin. The subcutaneous injection of gelatin during hemorrhage is a questionable proceeding. Given by mouth gelatin does no harm but is probably also of little value. The internal administration of calcium chloride has given indefinite results. Ergotin is not only useless but entirely irrational. The internal or subcutaneous use of adrenalin is absolutely contraindicated.

AN ANTIGONOCOCCUS SERUM EFFECTIVE IN THE TREATMENT OF GONORRHEAL RHEUMATISM.—Torrey (*Jl. Am. Med. Assn.*, 1906, p. 261.)

THE TREATMENT OF GONORRHEAL RHEUMATISM BY AN ANTIGONOCOCCUS SERUM.—Rogers. (*Jl. Am. Med. Assn.*, 1906, p. 263.)

Torrey and Rogers report a method of obtaining an antigonococcus serum and the results obtained with it in the treatment of eight cases of gonorrhoeal rheumatism, including both acute and chronic forms. Various cultures of gonococcus were used, some obtained from active infections in male patients, others from cases of vaginitis. For purposes of inoculation a mixture of ascetic fluid and slightly acid beef infusion peptone broth was used in equal parts. This was distributed among tubes of 12 cc. capacity. The best results were obtained from cultures from six to fifteen days old which were killed by heating for several hours at 60 degrees C. Large rabbits were used in producing the serum and injections of 10 cc. of the entire culture were made at intervals of about four days. After six injections had been made the animal was bled, 70 to 90 cc. of serum being obtained. This was divided into quantities of 2 cc. and sealed without preservative. The serum is chiefly bactericidal, though in all probability it also contains an antitoxin.

Clinically the serum was administered subcutaneously in eight cases of gonorrhoeal rheumatism in doses of thirty to forty minims, every day, or every other day. There is generally an improvement in the pain and in the inflammatory condition at the end of twenty-four hours, and a complete disappearance of the disorder in a week or ten days, when the condition is acute, but it may be much prolonged in chronic cases. There is constant danger in the acute cases of a recrudescence after suspension of the injections, particularly if the urethritis still persists. It is important to note that the urethritis is very little if at all influenced by the serum. Of the eight cases treated, only one, a case of more than ten years' standing, failed to improve under the serum treatment.

The progress under the administration of the serum depends upon the promptness with which the condition was recognized. After the inflammatory process has continued for several weeks, new tissue and adhesions have formed, or destructive processes may even have begun. These changes cannot be influenced by the serum. The writers have found that great differences exist in the effectiveness of serum from different rabbits and of different bleedings.

PATHOLOGY AND BACTERIOLOGY.

IN CHARGE OF

CARL FISCH, M. D.

CONTRIBUTION TO THE QUESTION OF TUBERCULOSIS ON THE BASIS OF EXPERIMENTS ON ANTHROPOID APES—v. Dungern (*Muench. Med. Woch.* 1906, No. 1,) insists that to understand the relation of man to both types of tubercle-bacilli, the human and the bovine, two methods are at our disposal. The one followed so far, especially in the splendid work of Kossel and his associates, starts out with the cultivation of bacilli from human lesions and the investigations of the racial characters of the cultivated bacilli. The decisive points are mainly the higher virulence for cattle and some cultural differences. In this way the greater majority of cultivated forms were found to be of human character, while, in a few, mainly derived from intestinal and mesenteric lesions (only two from the lung) showed the characteristics of the bovine bacillus. The conclusion that these observations reveal the true nature of the behavior of the two forms of bacilli would only be justified if we with certainty knew that the bovine-bacillus does not undergo in the human organism a change of its pathogenicity. Experiments to alter the virulence of any of the two forms for different animals have given very contradictory results; altogether, it appears improbable that a change can be brought about in this way. Theoretically, therefore, we have no right, without experimentation on human beings to priorily assume that the bovine-bacillus is less virulent for man and not, perhaps, more virulent than the human form. The other method is the experimentation on animals nearly related to man, that in their biologic-reactions can hardly be differentiated from man (precipitin reaction, etc.). v. Dungern used, during his stay in Sumatra, anthropoids, of which two species of Gibbons (*hylobates syndactylus* and *agilis*) were at his disposition. The animals were inoculated subcutaneously with equal doses of living bacilli, the one series receiving the bovine, the other the human culture. All of the animals that did not die of intercurrent diseases died of tuberculosis, which in all cases showed a general dissemination over the body. A difference in the effect in the infection with bovine or human bacilli could in no way be established. Two other series of three animals each were infected by feeding the bacilli. Two of each series died; those infected with bovine-bacilli with a typical intestinal tuberculosis, while the two killed by human bacilli showed the oldest lesions in the lower lobes of the lungs. v. Dungern declares that for the last ones the infection by a passage of the bacilli through the intestinal mucosa and in addition through the mesenteric glands without leaving marks of their presence is to the highest degree improbable. He is rather inclined to believe in a direct infection by way of the bronchial tract. The analogy of these findings with human experiences suggests to the author that bovine bacilli in some way prefer the intestine as a port of entrance, the human the bronchial passages. Van Dungern's work is exceed-

ingly important, as it calls to our mind a factor that seems to have escaped the mind of most observers. Whether the material accumulated by him is sufficient to allow further conclusions is not certain. But it has shown the way in which, more directly than up to now the importance or harmlessness of the bovine bacillus can be determined. The author insists on its dangerous qualities, an opinion that must have suggested itself necessarily from the results of his experiments.

INTRACORPUSCULAR CONJUGATION OF THE MALARIAL PLASMODIA AND ITS SIGNIFICANCE.—Charles F. Craig (*American Medicine*, Vol. X, No. 24-25.)—The most important and significant contribution to our knowledge of the life of the malarial parasites and its relation to the course of malarial infection in man, that has been published since the work of Ross, Grassi and others some ten years ago, is this paper of Craig. It is the more interesting since it seems to show that we are still too ready to make so-called final conclusions. Craig's work has been anticipated by that of Ewing, who some years ago described forms of the parasite that he was inclined to believe to be the result of conjugation of two parasites attached to the same corpuscle. Unable to directly observe this process of conjugation, he left the subject unfinished. Craig has made it the task of an immense amount of work on hundreds of cases of malaria of every type and every clinical form to bring clearness. His result is that in every case of malaria, no matter what type, conjugation regularly occurs, not between the larger forms of the parasite, but always at the stage of the ring form. The process has been many times followed up completely in the fresh blood, and has in stained material been observed very frequently by all observers as rings with two chromatin dots. In older stages these conjugated organisms cannot be with certainty differentiated from unconjugated ones at the stage of chromatin division before sporulation, a point made in reflection on Ewing's observations. The time in the course of the infection and the frequency of the conjugation during it has been the object of much tedious work that, however, has resulted in facts that theoretically and practically are of great weight. It was found that in every case of malaria the parasites multiply for a number of generations asexually by sporulation and without conjugation, without causing any more than slight symptoms. After a certain time, the parasites become exhausted, as the expression is, and now conjugation begins, and, with conjugation, the clinical attacks of the disease. If, for some reason, the conditions for conjugation are not given, the parasites perish, and, clinically, we observe a spontaneous recovery. Craig's work has given a full explanation of the processes in the acute and recurring malarial attacks, the absence of the latter in latent infections, and the disappearance of the infection in cases of spontaneous recovery. Conjugation is a process to preserve the reproductive power of the organism by rejuvenescence. It is not necessary for sporulation, as in latent malaria. The latter obtains without conjugation. Conjugation in malaria is analogous to the same process observed in so many other protozoa, the interpretation of which by Bueschli was started in the way that Craig has indicated. It is always a means to rejuvenate a race exhausted by the continued fissions of the individual cell. Cal

kins, for infusoria has illustrated this admirably. Practically, Craig's discovery will be of great value, as it enables us to deal now clinically with malaria on a much firmer basis than before. Indirectly, Craig's observations have been confirmed by the investigations of Koch on certain forms of piroplasma, in which he also saw conjugation.

ABOUT RESORPTION AND PHENOMENA OF IMMUNITY.—E. Loewenstein (*Arch. f. Hyg. u. Infect. Ur.* Vol. 51, H. 3.)—The very interesting and perhaps important suggestions made by Loewenstein are derived from experiments in all of which he inoculated rabbits with the same quantities either of tubercle or typhoid bacilli. In some, the site of injection was the anterior chamber of the eye; in others the subcutaneous or intravenous way was used. The eye inoculation remained local, while the other methods lead to death from tuberculosis. The serum of these animals was examined for their agglutinating quality. The eye animals showed no agglutination, while the others exhibited a high agglutinating capacity. It is shown, thus, that tubercle-bacilli and dead typhoid bacilli injected subcutaneously or intravenously, cause pronounced production of agglutinins, while the same quantities injected into the anterior chamber have lost this quality, and that therefore a purely local infection does not lead to agglutinin formation. It appears that in immunity the same conditions obtain, general infections in most diseases leading mostly to immunization, local infections not (gonorrhea, erysipelas, etc.). Chronic infections are generally local infections, and therefore in them immunity does not appear. After the healing of one focus, another one forms in its neighborhood.

This could lead to attempts to alterate the slow, uniform course of a chronic infectious disease by imitating artificially the course of the acute infections in establishing immunity. As experiments have demonstrated that local infections have no general effect on account of the lack of resorption, the specific causative agents of the chronic infections must be made amenable to resorption, so that an active immunization during the course of such a disease becomes possible. As lately the extent of specificity has been extended even to individual strains of pathogenic microbes, in each case the specific bacillus ought to be utilized. Besides tuberculosis, lepra, actinomycosis, trachoma, suggest themselves as accessible to this method. The author even thinks that a treatment of lepers by the injection of an emulsion of leprous lesions of the same patient is within the range of success.

Although at the first glance Loewenstein's ideas appear somewhat phantastic, they are certainly based upon exact experiments, made also by others, leading to the same result, the demonstration of a local immunization. Wassermann has made interesting reports about this condition in typhoid. In this condition, the gall bladder has become known lately as the main focus for local immunity in animals and man. Very interesting also is the local immunity for vaccinia, limited in the cornea of rabbits (Prowaczek) and rats (reviewer) to the area of the extent of the inoculation surface. Loewenstein's results may be very important for learning to understand the action of tuberculin and its derivatives, together with that of the bacillary substances used for immunization and treatment, down to Behring's latest T. C.

GYNECOLOGY AND OBSTETRICS.

IN CHARGE OF

HUGO EHRENFEST, M. D.

CESARIAN SECTION.—R. Olshausen (*Zentralbl. f. Gyn.* No. 1, '06.)—This short article of four pages gives an exceedingly clear expose of the present status of Cesarean section. In 118 sections performed in the writer's famous clinic in Berlin the operation was necessitated by the following anomalies: Contracted pelvis in 91; eclampsia in 7; myoma in 6; carcinoma in 4; vaginofixation in 4; nephritis in 2; cardiac lesion in 2; stenosis of cervix and vagina in 2 cases. He considers Cesarean section justifiable in eclampsia whenever very severe convulsions occur very early in labor or before labor really began. Of course, at present the vaginal Cesarean section is given preference. This latter operation was performed on 12 patients (not included in these statistics). In discussing the various indications for Cesarean section the writer mentions the fact that in the United States, authors have recommended the operation also in placenta previa. "In Europe nobody seems to have accepted this indication, which even in America seems to have more enemies than friends. Before long this indication will have disappeared, or—more correctly expressed—will have been forgotten as a blunder."

In speaking of his technique he claims that the placenta can be avoided if one knows that the situation of the placenta can be determined almost positively by the presence of a larger amount of veins in this region of the uterine wall. The direction and insertion of the round ligaments are in this respect valueless. He makes a sagittal incision. He believes that any serious hemorrhage can be prevented if the patient is given a large dose of ergot hypodermically about 20 minutes before operation. The uterine incision is closed with 8 to 12 catgut sutures which are placed within the muscular substance thus avoiding both the decidua and the peritoneum. The latter is then closed by means of a continuous suture, which also passes through the superficial layers of the uterine muscle. No method of suture, no particular suture material will safely eliminate the danger of a uterine rupture in the scar during a subsequent pregnancy.

TWIN PLACENTA WITH A SINGLE AMNIOTIC CAVITY.—Pfeilsticker. (*Zentralbl. f. Gyn.* Dec. 9, '05.)—The publication of two cases of this rather rare condition by Wenzel (*ibid.* No. 32, '05) induced the writer to put another case on record. The two umbilical cords leading to a large common placenta were twisted around each other, but between the cords, on the fetal surface of the placenta, there was a crest of amniotic tissue. This ridge on one place was 5 cm. high and contained two distinct layers of amnion. This crest clearly proves the existence of two separated amniotic sacs in the earlier stage of development, the dividing wall having been torn later.

METRRORRHAGIA MYOPATHICA.—Brooke M. Anspach (*Am. Jl. of Obst.* Jan., '06.)—Metrorrhagia myopathica is a form of uterine hemorrhage which is independent of the usual causes of metrorrhagia, and is produced by a pathologic condition of the uterine muscle. Anatomically this lesion is not as yet definitely known, but from his investigations the writer is led to believe that finally it may be found in the elastic tissue constituents of the walls of the vessels and the subserous and supravascular layers. A deficiency in elastic tissue may secondarily cause a physiologic lesion consisting of an insufficient contractile power of the uterus. It is, however, possible, that the condition is purely a functional one without any anatomical changes which could be recognized. This disease is unknown in the nulliparous woman, and therefore must have some connection with the child-bearing process. The diagnosis can only be made by positive exclusion of all other causes of uterine hemorrhage. While curettment, atmocausis, etc., have little effect, palliative measures should always be tried before hysterectomy is performed, which is indispensable in some cases of severe hemorrhage.

PEDIATRICS.

IN CHARGE OF

ALFRED FRIEDLANDER, M. D.

CONCERNING THE BLOOD PRESSURE OF HEALTHY CHILDREN.—Oppenheimer and Bauchwitz (*Archiv. f. Kinderheilk.* Vol. 42, p. 415,) in their studies of the subject of blood pressure in childhood, used the three sphygmomanometers most commonly employed at present; the instruments of Basch, Gaertner and Riva Rocci. They conclude that the Riva Rocci instrument is by far the best, that the percentage of error with this instrument is far less than with the others mentioned. They find that Sahli's modification of this instrument may be used both for children and infants. The results obtained while infants are screaming are, however, not trustworthy.

The blood pressure increases with age in childhood. After the ingestion of food, particularly after considerable quantities have been taken, there is an appreciable rise in blood pressure. In infants, the phenomenon is not always noted. The ingestion of large quantities of fluid also raises the pressure. Physical exercise in moderate amount raises the pressure, though in some of the experiments there was no change. Psychological excitement always raises the pressure.

The authors note the fact that their experiments, and the observations of most writers, concern only the maximum or systolic pressure. Observations on the diastolic pressure are as yet not available, in any great number. It would appear, however, that by the method of Strassburger (the details of which may be found in the original article, in the *Zeitschr. f. klin. Med.* Vol. 54) the diastolic pressure may also be recorded, at least in older children, though probably not in infants.

At the last meeting of the German Pediatric Society at Meran, Trumpp

reported the results of his studies of the blood pressure in infants in health and disease. He used the Gaertner tonometer, and as the result of 1300 measurements reached the following conclusions (*Archiv. f. Kinderheilk.* Vol. 42, p. 456): In the waking infant, and in the infant while screaming, the pressure is higher than during sleep. A rise in pressure follows the taking of food. Change of food, particularly the change from breast to bottle, causes a rise in pressure. The normal pressure in infancy is about 80 mm. In bronchitis and pneumonia there is a rise in pressure, comparable to the severity of the lesion. In convalescence the pressure falls. Pus retention increases the pressure. In acute cases, with great loss of the body fluids and of the body weight, there is a fall in pressure. In chronic disturbances of nutrition the blood pressure varies with the condition. Loss of weight usually causes a fall.

Increase in pressure or constancy in the reading, offers an important index, as to whether a gain in weight is due to retention of fluids, or to actual growth.

ADENITIC FORM OF GRIPPE IN CHILDHOOD.—Clos (*These de Paris*, 1905, Rev. Mens.) noting the tendency of influenza to attack the mucous membranes, says that it frequently causes adenopathies. The glands of the neck, at the angle of the jaw, and the postpharyngeal glands are most often affected. This adenitis, accompanied by high fever, may constitute the dominant symptom of the malady, or it may develop at the same time as other symptoms. It recalls the clinical picture of glandular fever, which, according to some authors, is always an influenzal manifestation. This adenitis resolves slowly if at all, usually taking from two to six weeks. Often enough it ends in suppuration, and may be the origin of a retro-pharyngeal abscess. The prognosis is however good in the majority of cases. Prophylactic treatment consists in the care of the oral mucous membranes.

CONGENITAL LARYNGEAL STRIDOR.—Koplik (*Archives of Pediatrics*, Dec., 1905,) reports a typical case with autopsy findings. He is unwilling to accept the theory that the symptoms in this condition are due to enlargement of the thymus. He points out that enlargement of the thymus is found in many diverse conditions, that absolute proof of its causal relation to the condition under discussion is still wanting. For the same reason, the author does not accept the theory of Thomson and Turner, that the condition is due to a disturbance of the co-ordination of the respiratory movements, probably due to some developmental backwardness of the cortical centers which control them. He believes that the condition is due to an anomaly of the epiglottis and larynx. The autopsy findings in his case showed the condition which has been described by Lees and Refslund in their cases of congenital laryngeal stridor. The epiglottis was curved backward and lay over the superior opening of the larynx. The lateral borders of the epiglottis were in contact. The arytenoepiglottic folds were almost in contact. The aditus laryngis was thus much narrowed and deformed. There was no membrane, no inflammation or swelling, no cicatrices, either above, on, or below the cords. The thymus was found to be large, weight 25 grams, but the author does not think that this condition can be held to explain the lesion. By a

curious coincidence, Ballin, in the December, 1905, number of the *Jahrbuch f. Kinderheilk.*, also discusses the question of a congenital laryngeal stridor. In five cases carefully studied, there was no evidence of hypertrophy of the thymus in three. He holds that such hypertrophy cannot stand in etiological relation to the syndrome. As a result of autopsy findings, in both of which there was abnormality of the larynx, the author is inclined to the belief that the mechanical theory of the production of the condition is the correct one, though he admits that a disturbance of co-ordination of the nervous mechanism of the larynx may antedate anatomical changes.

ORTHOPEDICS.

IN CHARGE OF

NATHANIEL ALLISON, M. D.

PAGET'S DISEASE, CONCERNING ITS PROBABLE SYPHILITIC ORIGIN.—Émile Auffret (*Revue d'Orthopédie*, Nov., 1905).—The author reports a case of a man of forty-five years, who presented deformities absolutely typical of Paget's disease. A careful study of the man's past history and of his hereditary history inclines the author to the opinion that there is certainly reason to suppose that hereditary syphilis, or acquired syphilis, were present and were influential in the production of the deformities in this case. He refers to the opinion expressed by Lannelongue in 1903, that Paget's Disease may be seriously regarded as one of the parasyphilitic affections. Fournier also agrees in this opinion, and says that to his mind Paget's disease will undoubtedly one day be classed with tabes, general paralysis, and other late manifestations of syphilis. He has reported two cases, where there was no doubt of an association between Paget's disease and hereditary syphilis. The author suggests that in each new case of Paget's disease, minute research be made in order to discover the probable presence of syphilis in the antecedents of the person affected.

SHOES AND FEET.—Robert Soutter (*Boston Med. and Surg. Jour.*, Jan. 11, 1906).—A very large proportion of trouble with feet is caused by shoes. The best shoe that can be bought will affect the foot, to a greater or less degree. What can be done to prevent these marks of abuse which, when age comes on, make walking such a burden? Numerous experiments have been made by shoemakers, associated with medical advice, tending towards the production of a shoe which will not injure the foot. The orthopedic lines laid down for the making of such a shoe apparently do not agree with the practical points necessary to the shoemaker who is to manufacture the shoes. In consequence, shoes have been made, and put upon the market, for which the shoemaker had obtained the endorsement of a number of physicians in Boston and New York. The shoes were advertised broadcast, and came into use. The lasts were then thrown away, and a practical shoe, from the shoemaker's-

standpoint, substituted, using the same advertisement. The author points out that the chief fault of the present method of shoemaking is that the shoe is made for an astragalo calcaneus valgus. These shoes have a constant tendency to produce abduction of the front of the foot, and to cause hallux valgus. A desirable shoe should present the following qualities: the heel should not be higher on the outside; there should not be a stiff shank, and tight vamp seam combined; nor should there be a slanting, long, stiff counter. Free play of the toes should not be limited by the width of the front part of the shoe, or by a tight vamp seam, or stiff shank; by a tight upper or a high heel. In order to make the foot admired, it must be held in a position of strength, have the appearance of health, and be free from signs of abuse. This brings up the point of the wearer, who in a measure should be considered. He will persist in wearing French-shaped shoes as long as public opinion persists in the idea that this sort of shoe is the best looking. However, when his feet are lame, he must be willing to wear a shoe not conforming to style. It seems perfectly possible to smuggle in some sense, so that the unsuspecting shoe buyer will be spared future lameness, due to shoe deformity.

OPEN AIR TREATMENT OF BONE TUBERCULOSIS AT THE WELLESLEY CONVALESCENT HOME (With a list of 30 perfectly cured cases).—E. H. Bradford (*Boston Med. and Surg. Jl.*, Jan. 20, 1906).—In the minds of many there remains a belief that even where an apparent cure has been obtained in the treatment of bone tuberculosis, the patient nevertheless remains doomed to a life of disability, poor health or early death, due to some underlying constitutional vice. The author points out the error of this opinion, and reports a large number of cases of Pott's disease and hip disease, which were in the majority of cases treated at home, that have recovered entirely and are leading useful and active lives. As to the open air treatment of these conditions, he mentions the experiment which was necessitated at the Convalescent Home, by the destruction by fire of its buildings. This occurred three years ago, in the midst of a very rigorous New England winter. The children were placed in shacks, which had free opening to the outer air. It was found that their general condition, as well as their local condition, began to improve immediately. He believes that this success should stimulate efforts for the treatment and control of joint and bone disease by open air treatment. When one reads the accounts of sanitary conditions of large cities of antiquity and the middle ages, when people were crowded in huts littered with unchanged straw, with filth plastering the streets, and with no disposal of sewage, the virulence of epidemics which almost depopulated Europe is explicable. In the future, the present condition of our cities, where the majority of the population spends the greater part of their lives in rooms polluted with what may be termed atmospheric sewage, will be looked upon with the same horror by a generation to whom the White Plague will be as unknown as the Black Death or terrible ravages of small-pox are now to us.

A REPORT OF SEVENTEEN CASES IN OPEN AIR TREATMENT FOR SURGICAL TUBERCULOSIS IN CHILDREN.—John D. Adams (*Boston Med. and*

Surg. Jl., Jan. 20, 1906).—All of these seventeen cases showed diminished hemoglobin and general conditions very much below par, manifested by loss of flesh, indifferent appetite, lack of energy and absence of satisfactory improvement in local condition; those with abscess formations showing the characteristic of persistent sinus, with profuse discharge. Their ages ranged from four to twelve years. These cases were exposed to a temperature ranging from 5 below zero to 20 degrees, and were kept constantly out of doors. As a result, it was noted that there was immediately a rapid increase in weight, one case gaining 16 pounds in two weeks. The average gain in both weight and hemoglobin was marked; in fact, every case showed the most gratifying results as to appetite, color and activity, and in one case a persistent sinus closed completely, and remained so.

A NEW METHOD OF OPERATING ON DUPUYTREN'S CONTRACTION OF THE PALMAR FASCIA.—W. W. Keen, Philadelphia (*Amer. Jour. of Med. Sci.*, Jan., 1906).—The nodules and pits were so diffused over the palm in this case that it seemed impossible, by excision in the axis where later the bands of contraction would develop, to remove the contracting tissue. The author began his incision at the ball of the thumb, on a line with the interspace between the forefinger and middle finger, went down almost to the web between the forefinger and middle finger; then transversely to a point just above the web between the ring and little fingers; then up to the ball of the little finger, at a point corresponding to the beginning of the incision on the other side of the hand. This flap was dissected backwards from the transverse incision, and the dissection was carried down to the sheaves of the tendons. The palmar fascia was then dissected away from the under surface of the flap. The whole of the flap bled freely. The fibers going to the index and middle fingers were reached by undermining the skin overlying them. Union took place by first intention, and the patient was discharged from the hospital with normal motion of her fingers. The author thinks that this method of operating on the palmar fascia is desirable in more advanced cases, where there are distinct bands already formed.

NEUROLOGY.

IN CHARGE OF

SIDNEY I. SCHWAB, M. D.

A CASE OF MYASTHENIC PARALYSIS—Boldt (*Monat. Psychiatric u. Neurologie*, Jan., 1906).—This is a report of a case of myasthenia gravis with autopsy findings. Such cases are so rare that each one is worthy of careful attention. This case is that of a man aged thirty years. At the time of the first examination the symptoms which were most prominent were weakness, difficulty in swallowing and in speaking, on account of the great muscular fatigue. As the case progressed the typical symptoms developed in the way of attacks of dyspnoea, inability to swallow

food, etc., and great weakness. The patient died in an attack of choking. At the autopsy there was an absolutely normal finding in regard to the internal organs. The nervous system showed nothing abnormal except a quantity of minute hæmorrhages scattered throughout some of the nuclei of the cranial nerves. The author is inclined to agree with Oppenheim, who interprets these as the result of the frequent attacks of choking and are mechanically produced. In the muscles were found in places the cell infiltration of which Wigert among others has written about. The author does not attempt to explain the process from the meager post-mortem findings. This case can be set down as a very typical case of myasthenia gravis.

MUSCULAR ATROPHY OF THE ARAN-DUCHENNE TYPE OF SYPHILITIC ORIGIN—Lannois (*Nouvelle Iconographie de La Salpêtrière* 5, '06.)—The role of syphilis in the causation of muscular atrophies has been much disputed until Raymond in 1893 reported two cases, one with autopsy in which the specific origin was not to be disputed. In the case here quoted the syphilitic history is not in doubt. A man aged 47 years developed an atrophy of the muscles five years after the primary infection. The type of the atrophy was a typical Aran-Duchenne, with, however, a surprising retention of muscular strength. Under an anti-syphilitic treatment with subcutaneous injections of mercury, a very marked improvement was obtained. The author takes this occasion to emphasize the importance of treating syphilis of the nervous system by the injection method and not to waste time by inunctions and internal medication.

A SPECIAL FORM OF AMAUROTIC FAMILY IDIOCY—Spielmeyer (*Neurol. Cent.* No. 2, '06.)—This is a valuable contribution to the clinical and pathological data of this disease. The cases reported in this paper were all of the same family and were characterized by the following typical symptoms: A rapidly developing dementia in previously normal children; the family nature of the disease; with the beginning of the dementia in all four children a progressive retinal atrophy of the type of retinitis pigmentosa that is without the pigment. One of these cases was studied post-mortem and very peculiar and previously undescribed cell changes were found, which point to a primary cell process as the etiological factor in this disease. On account of the unusual cell changes which were found, the author believes that these cases should be given a separate place in the classification of the family idiocies. He apparently does not consider them to be of the amaurotic family idiocy to which the name of Sachs or Tay Sachs has been given.

A STUDY OF THE LARYNX IN TABES—Greene (*Boston Med. and Surg. Journal*, Jan. 4, '06.)—On account of the results of examination of the larynx of sixty cases of tabes with the view of obtaining data on the proportion affected, the nature of the disturbance and the period of occurrence in the course of the disease. Fifteen per cent. showed pharyngeal complications. The only form of paralysis observed was abductor paralysis. Six cases were found, five were unilateral and one bilateral. The laryngeal symptoms are among the early symptoms of tabes.

SUDDEN DEATHS IN TABES DORSALIS—Hirschberg (*Neurol. Cent.* No. 1, '06.)—Goldflam published a paper in which he analyzed the cause of death in tabetics and called attention to the fact that in a certain percentage of cases there is found arterial disease as well as heart conditions in which sudden death is frequent. This fact should always be considered in the prognosis which is given to these patients. Hirschberg recounts a case of sudden death in which there was no heart lesion and no frank arterio-sclerosis. He suggests as a possible explanation for this case the existence of bulbar symptoms due to an arteriosclerosis in that region. This observation is of value as suggesting a possible explanation of some of the circulatory disturbances in tabes in which there is found no sufficient evidence from the clinical examination.

GENITO-URINARY SURGERY.

IN CHARGE OF

H. McC. JOHNSON, M. D.

THE ROENTGEN METHOD AS A GUIDE IN OPERATING FOR LITHIASIS OF THE URINARY TRACT.—Carl Beck (*Jour. A. M. A.*, Dec. 23, 1905.)—Whenever errors have been committed in diagnosing lithiasis of the urinary tract, they were of the individual and not of the method. Skiagraphic technic is so much advanced today, that it stands in no need of the imagination. A definite diagnosis in suspected lithiasis can be made. It is of much importance to bring the calculous area as near to the plate as possible, and to keep the field absolutely quiet. These two requirements are attained by the use of a tubular diaphragm, which offers another great advantage, that of permitting the passage of the focal rays alone, excluding those rays which emanate from the tubal wall. The disadvantage of the tubular diaphragms is that only small areas can be shown at a time. It is evident, therefore, that in skiagraphy of the urinary tract a general exposure must precede that of a limited area, since it cannot be known beforehand whether the suspected calculi were situated in one or in both kidneys, or in the ureters. The author gives in detail his *modus operandi* in renal skiagraphy of the urinary tract.

His experience with the Roentgen method has suggested to him that it is invariably necessary to skiagraph the renal regions whenever vesical calculus is suspected. Since he has made this a principle, he has found renal calculi whenever there was a concretion in the bladder. This is not strange, if we realize that most vesical calculi were originally formed in the kidneys.

Four interesting cases are cited.

CONTRIBUTION TO THE SURGERY OF THE PROSTATE GLAND.—Barker (*N. Y. M. J.*, Dec. 10.)—It is the physician's duty when he is called to relieve a patient's first retention, in cases of prostatic hypertrophy, to first use the catheter and relieve his patient, and then and there to im-

press upon him the necessity of the removal of the gland as quickly as the patient can get to the hospital. It is also his duty to return to his patient every eight hours and draw the urine until the patient goes to the hospital. The old practice of putting the catheter into the hands of the patient and teaching him its use should be condemned. The reasons for this are: The patient at this time is usually in vigorous health. He has not been poisoned by the absorption of residual urine. His bladder is in a healthy condition, not having been infected by uncleanly catheterism or in any other way. The patient is in such condition that prostatectomy is to him a benign operation, and in a few weeks he is able to go about his duties, free from disturbing urinary troubles. Should the physician fail to advise properly at this time, he has lost his opportunity and can do little but harm. The patient having learned to use the catheter, and the obstruction to the flow of urine being due to an acute congestion added to a chronic hypertrophy, in a more or less short time, the acute condition subsides, the flow of urine is again restored, and the patient believes he is cured. The trouble, however, recurs at some subsequent exposure. The physician is not called. The patient knows how he was treated before, and resumes the use of the catheter. The slowly growing hypertrophy of the prostate, hastened by the acute congestive attacks, becomes so great that it occludes the urethra all the time. Catheter life becomes continuous, infection of the bladder invariably follows sooner or later. Cystitis, with all of its torments, harasses the patient until physically and mentally wrecked, a subject for commiseration, he seeks surgical aid, or perhaps now for the first time is advised to do so by his physician. It is a compliment to surgery that it restores to health and comfort a very large percentage of these patients even at this time.

Thirty cases with one death are reported. The author operates by the inverted-U incision and has devised a tissue crushing forceps, for separating the prostatic adhesions, and a tractor.

OPERATIVE TREATMENT OF TUMORS OF THE BLADDER.—Watson (*Ann. Surg.*, Dec., 1905.)—The author proposes to substitute bilateral lumbar nephrostomy with ligation of the ureters and the establishment of renal fistulæ in cases of bladder tumor for ureteral implantation in connection with bladder resection or total extirpation, and that the bladder operation be done after an interval and not together with the nephrostomies. After reviewing the reported cases he says the sum and substance of other operative treatment up to the present time may be stated thus: If the operative deaths and rapid recurrences are combined under the one heading of operative failures, such failures are seen to have occurred in 28.6 per cent. of benign tumors, exclusive of myxoma, and in 46.0 per cent. of cases of carcinoma. The causes of the high mortality and of the frequent recurrence that have been shown, seem to be in a large measure due to the failure to operate soon enough and radically enough in cases of benign as well as in those of malignant tumors, and to the defects inherent in ureteral implantation. This points to the necessity of more radical measures in benign as well as in cases of malignant tumors, if we are to hope for better results. In inoperable bladder cases the nephros-

tomy could be utilized for relief that might be expected to result from diverting the urine from the bladder.

In suitable cases total extirpation of the bladder is to follow the nephrostomy one month or so later. In extirpating the bladder the writer suggests that the organ be approached first from the perineum, making the customary incision for separating the rectum from the prostate and then opening the peritoneum suprapubically and removing the bladder unopened through this cut, a procedure which offers so much greater facility for accomplishing the extirpation of the structures involved and secures much greater thoroughness than if the operation is undertaken extraperitoneally.

SOME NOTES UPON THE TREATMENT OF TUMORS OF THE BLADDER.—Wallace (*Amer. Jour. Urol.*, Dec., 1905.)—From personal experience of tumors of the bladder, the author offers the following conclusions:

1. In all cases of hematuria examine the bladder cystoscopically as early as possible. Symptomless hematuria is, in the majority of cases, the first symptom of vesical tumor, and early diagnosis may mean the removal of the disease at a favorable stage in its growth.

2. Pedunculated tumors are not more favorable for treatment than sessile implanted tumors of a similar nature.

3. Removal of the tumor in a certain proportion of cases can be complete, and recurrence does not take place.

4. Even if recurrence does occur the disease is delayed in its progress. The patient for a time is relieved from distressing symptoms and life is not only prolonged, but it is prolonged in greater comfort.

5. Operation should be delayed, in cases unfavorable for cure, until the symptoms are so severe that the patient's life is rendered very unpleasant and his health suffering.

6. Suprapubic drainage causes the hemorrhage to cease and by a diminution of the distressing symptoms—frequency and difficulty of micturition—makes the patient much more comfortable and prolongs life. Permanent fistulæ can have apparatus so fitted that distress from leakage of urine is almost entirely obviated.

7. Operation in the later stages of the disease, when sepsis is present and the symptoms are aggravated, and the patient suffers from toxic absorption, gives great relief.

8. In all cases of vesical tumor, whether the operation be curative or palliative in its object, the suprapubic route is the best to adopt.

LARYNGOLOGY AND OTOTOLOGY.

IN CHARGE OF

WILLIAM E. SAUER, M. D.

THE TREATMENT OF PAPILLOMATA OF THE LARYNX.—Koellreutter (*Monatsschrift fuer Ohrenheilkunde*, Jahr XXXIX, No. 11) reports in detail two cases of papillomata of the larynx in which the surgical re-

removal of the growths was followed by recurrences. In the first case that of a man aged 31, the growths had been removed twice within a month's time. The third removal was followed by the internal administration of Fowler's solution with the result that a laryngoscopic examination fourteen days later revealed no sign of any recurrence. A week later the patient was discharged as cured. The result was permanent. In the second case, a child of 5 years, a papilloma was removed under chloroform anesthesia by means of direct laryngoscopy. A recurrence quickly followed. The child was then given Fowler's solution. In spite of this the growths recurred in number and size. The growths were again removed and potassium iodide given instead of the Fowler's solution. This was continued for a number of months. The larynx gradually assumed a normal appearance and the child has now a good singing voice.

A CHARACTERISTIC SYMPTOM OF PURULENT THROMBOSIS OF THE SUPERIOR LONGITUDINAL SINUS. — Gradenigo (*Archives fuer Ohrenheilkunde*, Band, 61; Heft, 3 and 4) believes that the occurrence of a painful fluctuating swelling on top of the head near the middle line corresponding to the foramina emissaria Santorini in the posterior portion of the sagittal suture, to be characteristic of a thrombosis of the superior longitudinal sinus. This swelling may contain blood or pus and granulations. The author cites briefly eleven cases reported by others in which the thrombosis of the superior longitudinal sinus followed suppurations of the middle ear and describes in detail a case observed by him. The case was that of a woman aged 31, who came under observation in July, 1904, with a history of acute ear trouble in April of the same year, which had received no treatment. A swelling had appeared back of the ear which opened spontaneously. There was a small granulation at a point over the tip of the mastoid with a fistulous tract extending upward for a distance of 3 cm., but no necrotic bone could be felt. The hearing was normal and the drum membrane was not perforated, but had lost its normal lustre. The cervical lymphatic glands on both sides were enlarged. There was a painful fluctuating swelling at the vertex of the skull. There were severe headaches, especially at night. The patient was given potassium iodide, but no relief followed. The swelling was opened and found to contain pus and granulations. The bone was necrotic and a piece of bone about the size of a two-franc piece was removed. The dura was covered with granulations. An opening was made into the dura and a probe inserted which revealed a thick, creamy pus. The dura was freely incised and the sinus opened. This was found to contain no blood, but was filled with a thrombus. This thrombus was not removed, because the patient had no rise of temperature. The wall of the sinus was removed and the wound packed with gauze. The patient died nine days later from a general leptomeningitis. The post-mortem findings revealed a thrombus of the right lateral sinus extending into the superior longitudinal sinus. There was an oval defect in the temporal bone at the knee of the lateral sinus which communicated with the mastoid, which contained a number of cells filled with pus. The mastoid antrum and middle ear were normal.

POST-OPERATIVE HEMORRHAGE FOLLOWING THE REMOVAL OF THE PHARYNGEAL TONSIL.—Dupuy (*Laryngoscope*, Jan., 1906).—Excessive hemorrhage following the removal of the pharyngeal tonsil, or so-called adenoid, has not been, according to the author, accorded the deep consideration it really deserves from writers of text-books. Dupuy was able to find reports of thirty-eight cases of alarming hemorrhage following adenectomy, eleven of which were fatal. A few cases had been reported to him personally. Compared to the great number of adenectomies performed, the fatal results appear to be few. This, he believes to be due to a failure of reporting the fatal cases. This is undoubtedly the case. (The reviewer has received personal reports of two fatalities which had occurred within six hours after the operation, which have not been reported.) The different causes of hemorrhage are discussed, such as hemophilia, struma, lymphadenoma, exophthalmic goitre and the various forms of anemia. Among the local causes are abnormal distribution of the arterial blood supply, malpositions of the ascending pharyngeal artery, have been observed. In one case reported by Schmiegelow a malposition of the internal carotid artery led to a fatal issue. Dupuy is inclined to believe there is more danger of hemorrhage occurring when no general anesthetic is employed than with; there being more liability to instrumental injury. In the great majority of cases the bleeding occurred within twenty-four hours after the operation. In one case, death occurred on the eighth day after operation. The internal administration of calcium chloride a few days before operation will markedly lessen the tendency of bleeding in the hemophilic. The dose recommended is 30 grains as the initial one and five grains every hour until five or six doses are taken. This treatment should not be kept up for more than three days, for if too much of the drug is given the blood loses its coagulating properties. Much can be done to minimize the risk of bleeding by enjoining enforced rest in bed for twenty-four hours after operation. The giving of cold drinks and chipped ice should form a part of the post-operative treatment.

DERMATOLOGY AND SYPHILIS.

IN CHARGE OF

MARTIN F. ENGMAN, M. D.

CONTRIBUTIONS TO THE STUDY OF URTICARIA PIGMENTOSA—E. Graham Little (*Brit. Journal of Dermatology*, Jan. 1906.)—After comprehensive study of his own, and all the reported cases of this disease, the writer believes it justifiable to draw the inference that there is a general tendency, probably congenital, to over-production of mass cells in the skin of patients suffering from urticaria pigmentosa and that the local excessive accumulations of these cells can be caused by various accidental phenomena. The manner of the infiltration of the mass cells suggests a close relation with blood changes and certain examinations in these cases brings them somewhat into line with the results obtained in the class of blood diseases including hemophilia, pernicious anemia and lymphadenomata.

A CONTRIBUTION TO THE HYPERKERATOSES—F. Berring (*Archiv. f. Derm. und Syph. Bnd. LXXVI., Hft. 3, 1905.*)—That hyperkeratosis congenitale and ichthyosis cannot be sharply separated, led the author to this work. In hyperkeratosis he finds that there is no structural change in the sebaceous glands but that their numbers bear a direct relation to the thickness of the stratum corneum. No explanation for this is found. The hair follicles are the most altered and contain no hairs. In ichthyosis there is a sclerosis of the corium, the coil glands and the sebaceous glands are reduced in number, also the hair follicles, which do not show hairs. The horny layer is thinned.

A CASE OF ACUTE SEPTIC PEMPHIGUS—J. W. Crary (*Journal Cutaneous Diseases*, January, 1906.)—The patient was an infant born after prolonged labor. The third day after birth the temperature of the infant rose to 104° and then fell below normal. The physical signs were normal and the skin normal. Two days later an eruption of vesicles appeared over the cheek and about the angles of the mouth. As there had been a case of impetigo in the same ward, this trouble was thought to be of that nature, but did not improve under treatment. The eruption of the vesicles extended over the face, neck and chest, and became larger. Some of the bullæ were very large and broke, leaving denuded areas. Death took place on the twenty-third day of the child's life, twenty days after the rise in temperature and eighteen days after the appearance of the eruption. The temperature throughout the sickness was irregular. Autopsy showed small areas of bronchopneumonia in both lungs, heart normal, lymph nodes and peritoneum normal, spleen congested, fatty infiltration of the liver cells, kidneys large, soft and red, with degeneration in the cortical tubes; suprarenals were normal, umbilicus normal, but in a fusiform dilation of the partially obliterated left hypogastric artery was discovered a circumscribed collection of pus to the amount of about half a dram. Cultures from the blood in the vessels of the general circulation gave the staphylococcus pyogenes aureus; from the liver and from the spleen, the staphylococcus aureus and albus; and from the little abscess, the staphylococcus albus and aureus.

LICHEN PLANUS AND VITILIGO.—M. Delos (*Annals de Derm. et Syph.*, December, 1905.)—The writer describes a man of 60 years who has had for a long time plaques of lichen planus accompanied by disseminated spots of vitiligo. The co-existence of the two maladies is curious. The relative frequency of their co-existence is insufficient to draw any conclusions and does not throw any light upon the etiology of either affection. M. Delos in the same number publishes a case of lichen obtusus and vitiligo occurring coincidentally upon the same individual. These observations are exceedingly interesting and deserve a careful histological study of the skin. In the latter case biopsy was made which will be reported later.

OPHTHALMOLOGY.

IN CHARGE OF

JOHN GREEN, JR., M. D.

MENINGITIS FOLLOWING EXCISION OF THE EYEBALL. C. Devereux Marshall (*Ophthalmoscope*, Dec., 1905.)—It is probable that the majority of ophthalmic surgeons hold to the view that the removal of a suppurating globe is a procedure more than likely to give rise to a meningitis, and hence practice simple incision of the globe in order to let out what will come away of its own accord, reserving enucleation until after the acute symptoms have subsided. This method is claimed to insure exemption from meningitis.

The opponents of this practice, among whom Marshall may be considered the foremost, hold that incision into suppurating material within the eyeball does not render it any the less septic. In cases thus treated pus may soak back and infiltrate the orbit, giving rise to septic venous thrombosis, septic meningitis and pyemia. It cannot be denied that allowing a mass of pus to remain in such close relation to the meninges is hardly justifiable on general surgical grounds.

Early operation, i. e., as soon as suppuration is well established, gives the opportunity of removing the abscess sack intact. In order to obviate the chance of infecting the orbit in removing suppurating globes in a later stage, Marshall advocates a preliminary evisceration and the application of strong carbolic acid to the interior of the globe. He maintains that patients that die from meningitis after excision do so because the eye was left long enough to produce the disease before it was removed, and cites cases where meningitis followed panophthalmitis in an unoperated eye.

A CASE OF AMAUROTIC FAMILY IDIOCY, WITH A SUMMARY OF REPORTED CASES.—M. Frank (*Jour. A. M. A.*, Jan. 20th, 1906.)—Frank's case presents the well-known clinical picture of this rare disease. The trouble begins in the early months of life as a progressive muscular weakness, principally of the muscles at the back of the neck. At the same time there is evidence of diminution in vision. Hearing becomes hyperacute so that the child is disturbed by the slightest sounds. Mental development ceases. The outcome is invariably fatal. One curious fact is that all but six of the recorded cases have occurred in Jewish children.

The ophthalmoscopic picture is that of a post neuritic atrophy of the optic nerve. The changes at the macula are pathognomonic and consist of a nebulous greyish white area two to three times the size of the optic disk and slightly raised above the surface of the retina. In the centre, at the site of the fovea, is a dark red or liver-colored spot, clear cut in outline.

Holden's histological examination of Hirsch's case showed degeneration of the ganglion cells of the retina and of the nerve fibres of the optic nerves and tracts, a finding which has recently been confirmed by Shumway.

EUPHTHALMIN CONJUNCTIVITIES. — C. J. Kipp (*Ophthalmology*, Jan., 1906.)—Kipp prescribed a four per cent. solution of eupththalmin hydrochloride twice a day for an old man with central corneal opacities whose vision was greatly improved by moderate dilation of the pupil. There were no unpleasant symptoms for four weeks, when occurred swelling of the lids, pain in the eyes, and muco-purulent secretion. On stopping the drug for a week the conjunctival trouble greatly improved, but at once got worse on resuming its use in two per cent. solution. Kipp found both lids edematous and covered with dried crusts, much dried secretion entangled in the cilia and a swollen conjunctiva covered with enlarged follicles. Investigation at the dispensing pharmacy proved that the solution was really eupththalmin (and not atropin, as Kipp suspected). Bacteriological examination negative. Prompt recovery under a zinc sulphate collyrium and zinc oxide ointment.

THE GIANT MAGNET.—John Wharton (*Ophthalmic Review*, Dec., 1905.)—This paper embodies the results of an extensive experience at the Manchester Royal Eye Hospital. The writer considers the question under headings as follows: A. *The time intervening between the accident and the operation for removal.* The best results are obtained in those cases operated upon within twenty-four hours. After this period the foreign body becomes surrounded by a plastic exudate which seriously interferes with removal. In cases operated upon after days or weeks, the excessive traction required militates against a good result and may lead eventually to phthisis bulbi. B. *Situation of the wound of entry.* (1) In the cornea: When the fragment has lodged in the lens it can be readily removed and the final result as regards the integrity of the globe and vision is excellent. If it be in the vitreous or posterior coats, enucleation may be necessary on account of the development of iridocyclitis or the impossibility of dislodging the fragment. Removal by scleral puncture is deemed best when the metal has been some time in the eye. (2) In the ciliary body or farther back: These cases yield uniformly good results, which the author attributes to early operation, perfect asepsis, the insertion of a conjunctival suture, and, finally, to the fact that the wound of entrance is clean cut. C. *Septicity of the wounds.* The metallic chips themselves are generally aseptic. Infections come from subsequent bacterial invasion along the track of the wound or are introduced at the time of operation. From this point of view, the giant magnet has many points of superiority over the hand magnet, as the armature of the latter may have to be introduced into the globe and the probing may so disintegrate the vitreous that it furnishes a good culture-medium for germs.

Suggestions in using the giant magnet: (1) In recent cases with an open wound remove the metal through that wound. (2) When the original wound has completely healed, endeavor to draw the foreign body into the anterior chamber through the circumlental space, whence it may be easily removed. If this fails, (3) make a large corneal flap, when it will probably be found easy to remove the metal.

SOCIETY PROCEEDINGS.

ST. LOUIS SURGICAL SOCIETY.

Meeting of November 15, 1905.

TRANSFUSION.

Dr. Walter B. Dorsett read a paper with the above title, for which see page 217.

DISCUSSION.

Dr. Glasgow thought there could be but one opinion in regard to the utility of intravenous injections. The case of Dr. Dorsett's which resulted fatally, reminded the speaker of a case in which he had removed the cervix for cancer. The woman was transfused and the legs tightly bandaged, about 2,700 cc being injected in several seances. During the last injection she complained of pain about her heart, and the bandages were removed from the legs; the pain then disappeared, proving, the speaker thought, that it was a case of over-filling of the heart. She made some improvement, but died several days afterwards of tetanus. This was the only case in which he had ever seen any evidence of over-filling of the heart. In regard to giving the patient water before operation, he said this had been his practice for a good many years, and he rarely saw any severe vomiting after anesthesia. As a routine method he would not give intravenous injections, because he believed the same result could be obtained by the saline solution introduced into the rectum.

Dr. Tupper said he had noticed two things which seemed to indicate that the requisite amount of fluid had been carried into the vein. After a sufficient amount has been given the patient often becomes restless, nervous and excitable. These signs he had accepted as evidence of sufficient flow. The other indication was excessive diaphoresis. He said there could be no doubt of the great benefit obtained by intravenous injection of saline solution. He mentioned a case seen with Dr. Orr, in which the patient had taken twenty grains of strychnia sulphate by the mouth and was beginning to show the physiological effect and having typical convulsions. He immediately opened the median basilic vein and bled the patient copiously and then transfused. After that she had no more convulsions and her general condition became normal. He also administered apomorphia hypodermically simply to empty the stomach. With this exception, the bleeding and transfusion constituted the only treatment. In a few days the patient was entirely well.

Dr. Dorsett, in closing, said he had chosen to present this subject chiefly to popularize transfusion, as he thought it is not resorted to often enough, being put off till the last thing, when it is too late to do permanent good. One reason for this probably was because it was much easier to inject into the mammary gland, and general practitioners seemed afraid to undertake the intravenous transfusion. The addition of adrenalin in one desperate case, he believed, contributed to the successful outcome, the adrenalin seeming to have a stimulating effect upon the heart and acting upon the peripheral nerves.

ST. LOUIS SURGICAL CLUB.

Meeting of January 10, 1906.

TRAUMATIC DIPLEGIA.

Dr. Wm. S. Deutsch read a paper on this subject for which see p. 227.

DISCUSSION.

Dr. Morfit: The case affords an interesting study, and especially instructive, inasmuch as the operative treatment had more than ordinarily carried out the effect it was intended to produce.

The question arose as to whether the pressure, as no doubt it was a pressure trouble, was due to the cranial or cerebral condition. The traumatic depression in the skull was made out before the operation and led to the very logical conclusion that it was in some way connected with the diplegia, but at the operation another pathological factor presented itself. After the cranial depression was removed by trephining, a cyst-like body was found immediately beneath. When this was cut into, it spurted out blood, and if I gather the essayist's meaning there was considerable hemorrhage, although it ceased spontaneously upon the application of a slight pressure.

Now was this cyst really a cyst or an off-shoot from one of the cerebral sinuses, or was it confined blood, or blood mixed with mucin, or simply blood-colored cyst contents? The size and the situation of the cyst was enough to account for the diplegia without the presence of the cranial depression. It would have been interesting to have had an exact diagnosis of this bloody fluid. In the absence of this, I do not feel that we can positively conclude that this was a cyst and was not a dilatation or an off-shoot from a sinus containing circulating blood. The cranial depression was either the direct or the indirect factor in producing pressure. However, the cyst-like body was in all probability the permanent factor which maintained the pressure, and the cranial depression was not an active factor in keeping it up.

Such argument is only of value in the scientific relation. Practically both the conditions had pathological relation with the peripheral manifestations and it would have been as impossible as irrational to have removed the cyst, as we may call it, without correcting the cranial deformity. Intense headache was cured and this of itself warranted the operation. Added to this was the very gratifying improvement in the patient's ability to handle himself. I believe absolutely in the generally accepted routine cranial examinations in the presence of the large majority of all scalp wounds. At the same time, however, if we discover a linear fracture of the outer table, we can suppose that the inner table is depressed, as in a large number of instances it has been proven. Then in the absence of pressure symptoms we must watch and wait, as it is not yet conceded that all linear fractures must be trephined.

I call to mind a case sent to my service at the Mullanphy Hospital in which I performed a laminectomy for a double injury in the dorsal spine, causing paralysis from the thorax down. After operating on the back, a scalp wound was enlarged and a linear fracture found in the outer table of the posterior portion of the parietal bone. In the presence of consciousness and the paralysis due to the spinal injury, no localizing brain pressure could be inferred. The case came to autopsy and on examining the cranium a dispute arose as to the correctness of my observation in diagnosis of a linear fracture. I was opposed by several of the other observers and I myself felt that I was not quite as sure from the post-mortem appearances as I had been at the time of the ante-mortem examination. Examining the interior of the calvarium a very evident depression of the inner table was made out, but no special injury to the brain at that point and no other cranial fracture. However, the brain was dotted everywhere with blood clots, which

no doubt resulted from the general concussion of the brain itself with no special relation to the local trauma in the parietal bone.

It was strange that this large, able-bodied, strong man should have come to his death in this manner, because when we examined the kidneys we found them completely cystic without, from the gross appearance, a cubic inch of normal renal tissue. Yet his relatives assert that he had not recently been ill and had worked steadily, and the only symptoms that they described that might have led to renal investigation was occasional intense headache and nausea.

Dr. Kirchner said many scalp wounds and fractures are met with at the hospital, and the discussion would be a long one, if any effort were made to take up all phases of the subject.

The patient in these cases may be normal when first seen, but the next day the whole picture may be changed. By trephining, a subdural or epidural clot is found which, if allowed to remain, will result in a condition such as Dr. Deutsch found in this case. There may be an extensive injury to the inner plate, while the outer plate is nearly normal. The blow or injury might be on one side, and the actual injury be on the opposite side. Such a case had been sent to the medical division a few days ago and the doctor diagnosed it as a case of injury to the middle meningeal artery. The injury was on the right side, and the symptoms pointed to trouble on the left. Injury to the brain and its membranes by *contre coup* is quite frequently met with, and this fact should be kept in mind.

As a general rule all of these cases should be explored.

Dr. Reder said he could not discuss the paper as he would like to do because all of his cases had been brought to operation within a couple of hours after the accident.

The college teaching of his time was to let a depressed fracture alone unless it caused symptoms that could be directly attributable to it. That would hardly be done now. The bone in a depressed fracture should be elevated and that as soon as possible. The speaker mentioned the case of a man who had complained of headaches and had threatened to commit suicide. The case came to operation, a button was taken out about an inch in diameter, and conditions found such as Dr. Bartlett had described. He requested Dr. Deutsch, in his concluding remarks, to give further information in regard to the nature of the adhesions and the character of the walls that constituted this cavity.

In closing, Dr. Deutsch said there was a decided improvement shown in the patient's subsequent history, besides the entire relief from the headache. He got around better than before operation, having been so crippled that he could scarcely walk, had no control over the muscles and no strength in them. The case is one that precludes the chance of giving his muscles any very great improvement because of the operation having been twenty-one months after the injury. Those who saw him, however, feel that he undoubtedly got a better use of his extremities. An important benefit is that the man feels that he now has something to live for.

In regard to the cyst, he was in doubt as to its pathology, not having had opportunity to make any microscopical examination. It is easy to decide on these things if a pathological specimen can be taken home and examined, but he was unable to do that in this case. At first he did not know but that he had cut into the longitudinal sinus. The mass was right under the dura. It contained perhaps two tablespoonfuls of blood and serum. He could not positively say what the lining of the cyst was, but it showed that the condition was the result of a pathological process and not of anything normal, and was doubtless responsible for some of the symptoms and signs.

It was the speaker's belief that this patient should have been operated upon on the other side also, but the patient had received benefits on the right side as well as on the left, although the operation was entirely confined to the left. This point has been noticed by others in watching these cases after operation.

Meeting of November 8, 1905.

OSTEITIS DEFORMANS.

Dr. M. B. Clopton read a paper on the above subject, for which see page 223.

DISCUSSION.

Dr. Allison said that confusion of this condition with syphilis was very often made and possibly many cases were diagnosed syphilis because of the changes in the tibia. The value of the radiograph was shown here, for that cleared up the diagnosis very definitely. As to the therapeutics, it is generally admitted that little or nothing can be done. The condition is a constitutional one and there is no treatment that avails much. The fact that the weight-bearing bones were the ones usually affected might point out a line of treatment. The condition is usually symmetrical in development, but where only one limb is affected the weight might be taken off of that limb. The question of sarcoma is interesting in this connection. Most writers state that in a certain percentage of cases this condition results in sarcoma. The speaker asked Dr. Clopton just what this percentage was.

The president, referring to bone disease, said it was a singular fact that in the beginning of the condition the diagnosis was almost always rheumatism. The bone affection he had most frequently seen was osteomyelitis and in the stage of the disease where the diagnosis was difficult he had always taken into consideration the possibility of osteitis deformans. In this latter condition, however, there was no fever, while in the osteomyelitic condition there was fever and the characteristic pains. The disease seemed to affect the whole bone. Sometimes the diagnosis of the disease was an exceedingly difficult matter. Before the deformity became noticeable the only symptom was pain. The x-ray was of great value here. The speaker asked Dr. Clopton how long this condition might last.

Dr. V. P. Blair said he knew of one case in St. Louis, the patient having lived about fifteen years after the development of the disease.

Dr. Clopton said his interest in this condition had been aroused by seeing the case of Watson's, of Baltimore, which he reported in 1897. It was a typical case, such as was described by Paget. The patient's head was enormously increased in size and the posture was very characteristic. In Dr. Clopton's case the woman had trouble with this bone for twelve years, no other bones being involved, and this had led him to think it might not be a case of osteitis deformans; but in looking the matter up he found that there were cases reported in which but one or two bones were involved. In the early stages of the disease it would be practically impossible to make a diagnosis because the changes in the bones progressed very slowly. There were cases on record that had gone on for eighteen years after the time of their first observation. This was when the x-rays were not used, so that the disease must have been pretty well advanced when first noticed. The bending of the bones could not be explained by the weight bearing, because the ulna and radius when affected took on the characteristic curve, which may be due to the muscular pull on the front of the arm being greatest. Some pictures had shown the bend to be three inches in its widest part. This would seem to indicate that it would hardly be possible to relieve the condition by putting on a splint to take the weight off the affected limb. Osteosarcoma resulted in about five or six per cent. of the cases. Earlier observers were inclined to think that the giant cells found were evidence of some new growth. Some of those who had expressed such an opinion had retracted their statements about the character of the new growth and others doubtless would do so if there were occasion. This condition occurred in about two-thirds of the cases in men, while in osteomalacia 95 per cent of the patients were women. The x-ray was a most valuable aid in diagnosis. It would be an easy matter to make a differential diagnosis even though an osteomyelitis had gone on for a long time. The sequestrum

left in those cases always showed fairly well. In regard to the question of medication, the speaker said that phosphorus was no longer used. It had been shown that the bones were not low in any of the mineral salts normally found in them. Therapeutic measures gave no relief at all. Replying to a question by Dr. Blair, Dr. Clopton said that the radius did not bow outward, but backward.

Dr. Kirchner asked if the ulna also bent in those cases where the radius was bent.

Dr. Clopton replied in the affirmative.

Meeting of December 13, 1905.

TWO UNUSUAL CASES OF TUBAL PREGNANCY.

Dr. Dixon read a paper with the above title, for which see page 234.

DISCUSSION.

Dr. Ernst Jonas considered the most remarkable thing of the paper was the double tubal pregnancy observed in the first case. So far as the stiffness of the muscles was concerned, this had been cited as one of the points of differential diagnosis between appendicitis and this condition, but at the present time that is not considered true, for any peritoneal irritation might produce muscular rigidity. In a tubal pregnancy there is no reason why there might not follow a peritoneal infection after rupture of an infected tube. This should only make the surgeon hurry the more in doing the operation for tubal pregnancy. The speaker wanted to know how often double tubal pregnancy had been observed. He recalled one case, that of a woman brought to the University Hospital with a temperature of 106, followed by a severe chill, and in a state of general pyemia. The history was not clear, but the patient said that about eight months before she had missed her menstruation for four consecutive months, and since then had had irregular bleedings. She had been examined frequently by gynecologists and a diagnosis of pelvic abscess had been made. Operation was advised, but refused. At the examination at the University Hospital a slightly enlarged uterus was found and on the left side a large mass pressing the uterus to the right side. There were certain suspicious signs which made the diagnosis of pregnancy possible, and in connection with such high temperature and the general condition led to the thought of a macerated fetus in one horn or in the left tube. However, we did not exclude the possibility of a necrotic myoma with a twisted pedicle. Operation showed an extra-uterine pregnancy, the fetus four months old and macerated. The fetus and placenta and most of the sac were removed, and the remainder of the sac was sewed into the abdominal wound. The sac sewed to the abdominal wall has loosened and the uterus is now as movable as normally.

Dr. W. C. G. Kirchner said ectopic pregnancy was not frequently met with at the City Hospital. This was possibly due to the class of cases going to the hospital. These patients most frequently had been attacked by sudden pain and often there was some bulging of the cul-de-sac. Neither could he recall any case in which the condition was on the left side. The last patient was a young colored woman who gave a clear history of pyosalpinx. The cul-de-sac was bulging and she came to the hospital ten days after the attack. The abdominal muscles were rigid and there were symptoms of peritonitis. The lower portion of the abdominal cavity was found filled with blood. Both tubes were removed and the patient recovered. He asked Dr. Dixon about the temperature record and those conditions and symptoms which aided in making the diagnosis.

Dr. Dixon, in closing, said the number of tubal pregnancies, according to Sutton, were not so rare as supposed. He also relates the occurrence of a twin tubal pregnancy, both tubes having been removed at the same time. As to the ruptured tube, the theory maintained by Dr. Blair was the commonly accepted one. The temperature in most of the cases Dr. Dixon had

seen was subnormal. One patient was so comatose that he had operated upon her without an anesthetic. He had given a hypodermoclysis of normal salt solution under each breast and left a quart of the solution in the cavity, and within two weeks she had been able to return home. The mortality was high, though he did not know the percentage. Death from rupture of the tube was not so frequent, some claimed, as was generally supposed. Although the patient might bleed until unconscious and pulseless, she rallied and often lived, an abdominal pregnancy resulting. Operation should be done as soon as the diagnosis is made. If the patients were very weak and in the hospital, it was often advised to let them recuperate, as they did not often die from the bleeding. A ruptured tubal or ovarian pregnancy was the cause of the abdominal pregnancies. The diagnosis of tubal pregnancy with rupture was comparatively easy. There was usually a history of having missed one term or more, with a continuous flow lasting ten days or more, then a sudden pain, extending into the rectum, accompanied with nausea, fainting, weak, irregular pulse and clammy skin. The difference between this and appendicitis was the missed menstrual period and the absence of temperature. The rigidity of the abdominal muscles does not cut the figure it was supposed to. He considered the second case even more interesting than the first. This patient had menstruated October 20th to the 26th, was married November 8th, and on the 23d was taken with this violent pain, with the evidence of a rupture. In this case the abdominal cavity was full of blood.

BOOK REVIEWS.

A TEXTBOOK ON THE PRACTICE OF GYNECOLOGY. For Practitioners and Students. By William Esterly Ashton, M. D., LL.D., Fellow of the American Gynecological Society, Professor of Gynecology in the Medico-Chirurgical College, Philadelphia, etc., etc. With 1046 illustrations. Philadelphia: W. B. Saunders & Co., 1905.

This work marks a new departure in medical textbook writing. The author takes up each procedure necessary to gynecologic work, step by step. Nothing is left to be taken for granted, the author telling the reader in every step what and how it should be done, and if the description should prove insufficient the accompanying line drawing certainly shows exactly what and how it should be done. The more than one thousand very good diagrammatic drawings give in detail the procedures and operations without obscuring their purpose by unnecessary surroundings.

In our belief this volume will be of special interest and value to the general practitioner who wishes to refresh his memory or intends to acquaint himself with modern gynecology.

DISEASES OF WOMEN AND UTERINE THERAPEUTICS. By H. Macnaughton-Jones. Master of Obstetrics, Royal University of Ireland; Fellow of the Royal College of Surgeons of Ireland and Edinburgh; Formerly University Professor of Midwifery and Diseases of Women and Children in the Queen's University, etc. Ninth Edition. New York: William Wood & Co., 1905.

This volume must be accorded a distinct place in gynecologic literature. It certainly does not belong to that class of rather typical textbooks, in which the author presents his subject in the form of positive statements, conveying to the student the erroneous impression that every disease has its characteristic symptoms and runs its prescribed course, or in which the writer quotes extensively from the works of others but fails to mention their names.

Macnaughton-Jones' book is the combined result of an extensive personal experience with gynecologic work, of a profound knowledge of modern literature and an intimate personal acquaintance with all the leading gynecologists of Europe and their clinics. It is probably due to this latter fact that this volume, more than any other known to us, contains so much valuable information concerning the latest operative procedures and instruments employed in the best clinics of the world. The writer's extensive quotations from recent literature, containing often the accounts of very rare conditions, must prove confusing to the student, but make this book interesting and valuable to the practitioner, especially to the gynecologic specialist. It is obvious that this ninth edition of the well-known work must be designated "up-to-date," since it contains a strikingly large number of references from the literature of 1902 and 1903. The majority of the 637 illustrations rank among the best we have ever seen.

PROGRESSIVE MEDICINE, Vol. IV, December, 1905. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M. D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. Octavo, 367 pages, 41 engravings, and 5 full-page colored plates. Per annum, in four cloth-bound volumes, \$9.00; in paper binding, \$6.00. Lea Brothers & Co., Publishers, Philadelphia.

This volume contains the following articles: Genito-Urinary Diseases by Wm. T. Belfield; Diseases of the Kidney by John Rose Bradford; Therapeutics by

H. R. M. Landis; Diseases of The Digestive Tract by J. Dutton Steele; Fractures, Dislocations and Amputations by Joseph C. Bloodgood.

With this volume, *Progressive Medicine* completes its seventh year of publication. The work has from its inception embodied an earnest effort to present a contemporary record of the best that is being thought and done in medicine, both from a scientific and a practical standpoint.

A COMPEND OF MEDICAL LATIN. Designed expressly for Elementary Training of Medical Students. By W. T. St. Clair, A. M. Second Edition, revised. Philadelphia: P. Blakiston's Son & Co., 1904.

This little volume, published in the quiz-compend series, is a most valuable and timely publication. It is a brief but none the less thorough exposition of Elementary Latin Grammar, with particular application to forms employed in Medical Latin, and using in its examples the vocabulary of medicine.

THE INTERNATIONAL MEDICAL ANNUAL. A Year Book of Treatment and Practitioners' Index. 1905. Twenty-third year. Treat & Co., New York, 1905. Price \$3.

This volume gives in an alphabetical arrangement brief synopses of the advances in *Materia Medica* and Therapeutics, and in methods of treatment. It is provided with a number of good plates and diagrams.

A TEXTBOOK OF CLINICAL DIAGNOSIS BY LABORATORY METHODS. By L. Napoleon Boston, A. M., M. D. Second Edition. W. B. Saunders & Co., Philadelphia and London, 1905.

The first edition of this work appeared last year and was then reviewed in some detail in these columns. Now, eight months later, a second edition has been issued. But slight changes have been made. At the end some seventeen pages of new matter have been added, covering the more important advances. The book is clearly written and well illustrated. The more elementary laboratory procedures are well described, rendering the volume a useful one to put into the hands of students. The more advanced laboratory worker will find other books more to his mind.

THE DIAGNOSTICS OF INTERNAL MEDICINE. By G. R. Butler, Sc. D., M. D. Second Edition. D. Appleton & Co., New York and London, 1905.

The writer has divided his book into two main portions: The first half contains a description of the various signs and symptoms met with in clinical work, together with an analysis of their diagnostic significance; the second part is devoted to the pathologic conditions themselves particularly from the point of view of their diagnosis. The volume which is handsomely gotten up and beautifully illustrated seems especially suited to the needs of the recent graduate who will here find many a hint to aid him in his diagnostic work. The medical student too will find the volume useful.

NOTHNAGEL'S PRACTICE. American Edition. Diseases of the Kidneys and of the Spleen, and Hemorrhagic Diseases. By Dr. H. Senator and Dr. M. Litten. Edited with additions by James B. Herrick. Authorized translation from the German under the editorial supervision of Alfred Stengel. W. B. Saunders & Co., Philadelphia and London, 1905.

Senator is known for his logical reasoning, his systematic arrangements of facts, his conservatism and his profound knowledge of those subjects upon which he lectures. In his work on diseases of the kidney he has combined all of this with a most careful review of the literature on the subject and has thus gotten

together probably the most concise and complete work ever written on diseases of the kidney. The general portion of the work is especially commendable, in which he devotes a chapter to each of the following subjects: Albuminuria, Mucinuria, Urinary tube casts, Hæmaturia, Hæmoglobinuria, Lipuria, Oxaluria, Phosphaturia, Dropsy and Uraemia. These subjects are handled in a masterful way and all that is definitely known concerning them is presented here in his characteristic style. The special portion, in which the individual diseases are considered, shows the results of years of personal experience in diseases of the kidney.

The second half of the work is devoted to diseases of the Spleen and Hemorrhagic diseases by Dr. M. Litten. Some 330 pages are devoted to a careful consideration of a subject altogether too little understood by the majority of physicians. The chapters on the Leukaemias are worthy of special mention and careful perusal. Under Hemorrhagic diseases the author treats of Scurvy, Infantile Scurvy, Hemophilia and Morbus Maculosus Werlhofii.

THE SURGICAL DISEASES OF THE GENITO-URINARY TRACT, VENEREAL AND SEXUAL DISEASES. A textbook for Students and Practitioners. By G. Frank Lydston, M. D., Professor of the Surgical Diseases of the Genito-Urinary Organs and Syphilology in the Medical Department of the State University of Illinois (the College of Physicians and Surgeons). Second Revised Edition. Illustrated with 233 Engravings and 7 Colored Plates. $6\frac{1}{2} \times 9\frac{3}{4}$ inches. Pages xv. 1008. Extra Cloth, \$5.00 net. Sheep or Half-russia, \$6.00 net. F. A. Davis Company, Publishers, 1914-16 Cherry St., Philadelphia.

The thorough manner in which the author considers his subjects is only equaled by the attractiveness of his style of writing. The arrangement of the book is most clear and excellent. Dr. Lydston has incorporated in the work not only the results of his wide experience in actual practice, but also all of importance that could be gleaned from the writings of others.

NEW METHODS OF TREATMENT. By Dr. Laumonier. Translated by H. W. Syers, M. A., M. D. Chicago: W. T. Keener & Co., 1904.

Laumonier's book is entertainingly written and is especially interesting as representing a typical French point of view in Therapeutics. Much space is devoted to a discussion of the Cacodylates and other drugs towards which the French seem especially to incline, whereas little is said of the multitude of new German synthetic products and the hygienic, dietetic and balneologic methods of treatment are hardly even mentioned. The volume is disfigured by a number of errors, as for instance, on p. 181, where a formula is given containing only half as much bromide of strontium as was apparently intended. There is an adequate index.

METHODS OF MORBID HISTOLOGY AND CLINICAL PATHOLOGY. By T. Walker Hall and G. Herxheimer. 1905, J. B. Lippincott Co., Philadelphia.

Inscribed to the memory of Carl Weigert, the teacher of one of the authors, who is himself a well-known and reputed microscopist, this book appeals a priori to the mind of workers that know what thorough and classic results the Weigert school has obtained. But even if this sentiment, or prejudice, should not obtain, it must appeal to everyone occupied with histologic and pathologic studies. Although the authors, in their preface announce that the book is intended for students and pathologists, the reviewer does not know whether the student would not do just as well with one of the well known compends. But no pathologist should miss this work, not because he is constantly called upon to consider the chemical and physical ratios of the methods discussed, as the remarks are too short and incomplete for this, but because he finds in this

book a great number of methods not published in the other compends and nevertheless of very great importance; they are otherwise accessible only by resorting to the original articles. The different procedures that Herxheimer himself has worked out for the demonstration of the finer structure of epithelial cells we find here collected, and in the same way others that have not yet reached the lethargy of the textbook-like methods of the other books on the subject, not even excepting that of Schmorl. We say this to invite the attention of pathologists to this book, while we do not want to say that it is one of the best works on the subject for the student also.

Ueber die Traumatische Entstehung innerer Krankheiten. Von Dr. Hans Klatt, Wurzbürger-Abhandlungen aus dem Gesamtgebiet der praktischen Medizin. A. Stuber's Verlag (C. Kabitzsch). Würzburg, 1905.

The little monograph discusses entertainingly the traumatic production of internal diseases. As is well known a local tuberculosis may follow trauma; a latent syphilis may manifest itself at the sight of an injury; the connection between injury and cancer is often close; diabetes, gout, leucemia and many other diseases have seemed to follow a trauma. The writer lays especial stress upon the connection between injury and many nervous diseases. The booklet will be read with interest. A number of misprints, however, disfigure its pages and the absence of an index diminishes its value.

MEDICAL JURISPRUDENCE. A MANUAL FOR STUDENTS AND THE PRACTITIONER. By Edwin Welles Dwight. The Medical Epitome Series. Edited by V. E. Petersen. Lea Bros. & Co., Philadelphia and New York.

This little book, like its companions, can be recommended for the purpose of quick orientation on data in medical jurisprudence. Necessarily the statements are short and presuppose a certain knowledge of the subject that a student cannot possess. It will be a useful guide for the practitioner, not for the student.

NERVOUS AND MENTAL DISEASES. By Archibald Church, M. D., Professor of Nervous and Mental Diseases and Medical Jurisprudence in Northwestern University Medical School, Chicago; and Frederick Peterson, M. D., President of the State Commission in Lunacy, New York; Clinical Professor of Neurology and Psychiatry, Columbia University. Fifth Edition, revised and enlarged. Octavo volume of 937 pages, with 341 illustrations. Philadelphia and London: W. B. Saunders & Company, 1905. Cloth, \$5.00 net; Half Morocco, \$6.00 net.

Inasmuch as this book has been written as a text-book for the student and the general practitioner it should be criticised only from this point of view. That part devoted to Psychiatry can not be said to satisfy the demand which a student or practitioner might well make of a book of this kind. Certainly the scholarly discussion by A. Myer on the present problems of Psychiatry is fairly heavy food for a student to digest. Whatever else a student needs in a text-book it certainly is not discussion and it certainly is presentation of clinical facts. There is no subject which can be made more attractive to a student than mental diseases and no subject which unfortunately is made less so to him and the reason is that text-books, and teachers for that matter, insist upon dwelling on the difficulties in the classification of the subject rather than upon the insane individual. This is the vital thing to the student and a writer of a text-book meant for the student ought to appreciate this fact. The neurological part of the book is well presented though the omission of a great deal of the later work on multiple sclerosis and Tic, to name only two examples, might be altered in the next edition. That the book has gone through so many editions shows that it meets a certain want and there must be something in it that appeals to

the student for whose needs it is written. There is no reason as far as the writer of this review can see, why a text-book written for students and the general practitioner should not present the subject as accurately and as carefully and with all there is to be known as if this same book were to be read by the specialist.

ANATOMISCHER ATLAS IN STEREOSKOPISCHEN RÖNTGENBILDERN. By Dr. ERNST SOMMER. Würzburg: A. Stuber. 1906. 10 marks.

The normal anatomy of the bones and joints is illustrated in this work by 20 anatomical plates. A diagram is placed at the top of the plate, on which is indicated the anatomical description of the special region to be described. Below this is placed a stereoptican skiagraph, which clearly shows the normal structure and appearance of the bones and articulations.

This work is not only of great value to the anatomist, but is equally valuable to the surgeon and radiologist.

RELATION OF DISEASES OF THE SKIN TO INTERNAL DISORDERS, with Observations on Diet, Hygiene and General Therapeutics, by L. Duncan Buckley, A. M., M. D. Rebman Co., London and New York.

Dr. Bulkley's life work has been more or less along this line, namely, the subject of general medicine to diseases of the skin, and a book from him on this subject is of great value. This little volume consists of 175 pages and is compiled from lectures delivered at the New York Skin and Cancer Hospital.

MANUEL ELEMENTAIRE DE DERMATOLOGIE TOPOGRAPHIQUE RÉGIONALE, by R. Sabouraud. Masson and Co., publishers, Paris, 1905.

Sabouraud, who is one of the leading French dermatologists, gives in this volume a concise but complete description of the various diseases of the skin which affect the different regions of the body. This arrangement renders it very convenient for reference. For instance, his first chapter comprises those diseases which affect the face and head, and as the illustrations are numerous and excellent, an obscure case can be readily classified by the student or the general practitioner upon close perusal of the text by referring to the region affected. The book shows throughout an immense amount of work, as it is far more difficult to arrange a book in this manner than in the usual one, cross references being constantly necessary. It is to be hoped that some one will translate this valuable volume into English as it would be of great assistance to the profession at large.

TREATISE ON DISEASES OF THE SKIN FOR THE USE OF ADVANCED STUDENTS AND PRACTITIONERS, by Henry W. Stelwagon, M. D., Ph. D. Fourth edition, thoroughly revised, with 258 illustrations in the text and 32 full page lithographic half-tone plates. W. B. Saunders. 1905. Philadelphia and London.

The popularity of this book is indicated by its fourth edition. In this edition the writer has brought chapters upon the Roentgen rays, high frequency currents and the various light treatments up to date and many of the chapters upon other subjects have been retouched or replaced by new ones. The literature especially has been brought up to date by foot notes, thus increasing the value of the work in various ways.

A MANUAL OF THE DISEASES OF INFANTS AND CHILDREN. By John Ruhrah, M. D., Clinical Professor of Diseases of Children in the College of Physicians and Surgeons, Baltimore. Pp. 404. Philadelphia: W. B. Saunders & Co., 1905.

This manual has been designed for the use of the medical student, as a volume of ready reference. Following the classifications as seen in the larger

text books, the author has summarized existing knowledge on the various subjects, relying both on the literature as well as on his own varied knowledge in his presentations. The danger, always present in books of this sort, that clearness will be sacrificed to conciseness would appear to have been almost wholly eliminated. The chapter on infant feeding is remarkably complete. One feature of value is the insertion of references to the literature, this being supplemented by a short chapter on the methods of looking up such references. As a whole, the book is a distinctively valuable contribution, which will be appreciated not only by the student, but also by the physician desiring a volume of ready reference on Pediatrics.

BABY INCUBATORS. A Clinical Study of the Premature Infant with Special Reference to Incubator Institutions Conducted for Show Purposes. By John Zahorsky, M. D., Clinical Professor of Pediatrics, Medical Department, Washington University, St. Louis. Courier of Medicine Co., St. Louis, 1905.

This little book is an elaboration of a series of articles on the subject of premature infants, detailing the author's experiences with the incubator institute at the World's Fair in St. Louis. In connection with question of public incubators, the author discusses with much wealth of detail, the problems of the raising of premature infants, with full consideration of apparatus, methods, etc. The book is a valuable addition to the literature of the subject. It is well supplied with charts, tables and illustrations.

LEHRBUCH DER SAUGLINGSKRANKHEITEN, von. Dr. Med. et Phil. Heinrich Finkelstein. Privatdocent und Oberarzt am Waiuehaus und am Kinderasyl der Stadt Berlin. Vol. I. Berlin, Fischer's Medicin. Buchhandlung H. Kornfeld, 1905. New York: G. E. Stechert & Co., \$2.50.

This book is one of the most important contributions to pediatric literature of recent years. Dr. Finkelstein takes rank as one of the first pediatricists of Germany, and his book embodies the results of his own exhaustive studies of the diseases of infancy, based upon a literally enormous clinical experience. Added to this are the critical analyses of the literature on the various subjects, with full literary references. The chapter on hygiene and development for instance is really a cyclopedic article, with the facts stated in a clear scientific style, which makes its reading delightfully pleasant as well as profitable. The diseases of the newly born are considered in detail, so too the general systemic infections, sepsis, hemorrhagic diseases, syphilis and tuberculosis. The last chapter of this volume is devoted to a thorough discussion of the diseases of the central nervous system in infancy.

To those who read German, this book will be invaluable as a standard reference work on the diseases of infancy, and the work is sure to receive in other countries the same enthusiastic reception that has been accorded it in Germany.

THE PRINCIPLES OF BACTERIOLOGY. A practical Manual for Students and Physicians. H. A. C. Abbott. 7th Edition. 1905. Lea Brothers & Co., Philadelphia and New York.

The new edition of this well known and appreciated book is changed in comparison to the older editions by the addition of the results of the latest bacteriologic work. An addition, too, is the treatise on infection or immunity, that is easy sailing to the initiated person, but will offer great difficulties to the student coming fresh into the subject. A more elementary representation of the subject and a smaller number of details would have served the purpose easier and with the same effect. For the reader who is not a specialist, this is probably about all he can acquire about the problems dealt with. This is not said as a detriment to the book, but as a point that does not fit in the otherwise clear and lucid way of demonstration used in it.

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ORIGINAL ARTICLES.

DESERT THIRST AS DISEASE.

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I.—A CASE OF THIRST.

The principal scene of the case is a typical *auguaje* (i. e., "water") of southwestern Arizona, known since the days of Padre Kino (who apparently passed that way in the expedition of 1701 which proved that California is not an island, and located the "Tinaxa" on his map of 1702) as Tinajas Altas, or "high tanks." The water lies in a number of potholes or water-pockets in a gorge cleaving the northeastern side of Sierra Gila; it is chiefly a residuum of the light midsummer or mid-winter rains, though the deeper pools are partly supplied by seepage from the granite ledges and precipices rising ruggedly several hundred feet above the gorge-bottom. The locality is about 75 miles southeast of Yuma, 40 miles south of Gila River, and three or four miles north of the Mexican boundary at a point 50 miles east of the mouth of Rio Colorado. The nearest house—the Southern Pacific station at Wellton—is some 30 miles northward in an air line, over broad sandwastes with scattered *sierritas* and *buttes*; water is obtainable at the Fortuna mine, 35 miles northwestward in Sierra Gila, and sometimes in other water-holes in the granites seven miles southward and twenty miles eastward; the abandoned Tule Well is 23 miles eastward, and the nearest certain water in that direction is in Rio Sonoyta sandwash at Agua Salada, some 80 miles away, or Agua Dulce, ten miles further. The region was never permanently inhabited by the aborigines, though temporarily occupied by the Papago Indians at the times of the cactus-fruit harvests, and apparently by the Cocopa and Maricopa Indians as a way-station on a severe and secret route of intercommunication; and hundreds of mortars are ground into the granites about the tinajas, while other relics occur. For the two half-centuries (1750-1848) during which California was a flourishing Mexican province, Tinajas Altas was reputed the sole sure "water" between Rio Sonoyta at Santo Domingo or Quitobaquito and Rio Colorado at Yuma on that desperately hard overland route known as El Camino del Diablo, which joined the royal

roads of Sonora and Sinaloa with the easier *El Camino Real* along which the old missions of southern California were strung; and during the days of the Argonauts, from '49 to the middle '50s, the same route was the hardest part of the Old Yuma Trail trod by American Pioneers in their long trek to the land of gold. From the single-house settlement of Quitobaquito to the town of Yuma the way is houseless, and apparently never had a fixed habitation save a small adobe at Tule Well; yet the passage of pioneers over the desert stretches was so steady and long-continued that hardly a mile of the 200 from Santo Domingo to Yuma remains unmarked by one or more cruciform stone-heaps attesting death by the wayside; death commonly in its cruelest form—by the torture of thirst. Most of the movement was westward, and the worst reach lay between Tule Well and Tinajas Altas; along this way the cross-shape stone-heaps, each telling its mute tale of tragedy, thicken until within gunshot of the nearly perennial water, where are over 60 marked graves—and how many unmarked none know—lie mostly on a single little mesa in plain sight of the pools; for again and again exhausted strugglers fell at the foot of the gentle up-slope, or failed to find water in the lowest pool and were unable to climb the rocks to the higher reservoirs: when, if the next followers were pious folk—as were most of the Mexican pioneers,—the stark bodies were laid in shallow graves laboriously sealed with the sign of the cross.

Such was the site of my camp from May 20 to August 28, 1905—a tentless camp, with a living population of one when Papago Jose was gone for a week or less at a time, of two when either he or the young histrion Harrison Ford was present (during the few weeks of his stay), and three with both; or of half a dozen for a few hours at a time when, as happened twice or thrice, prospecting parties passed that way: a camp devoted to meteorologic observation and study of the effects of light on desert life.

Just before noon of Monday, August 14, Pablo Valencia and Jesus Rios drifted into camp horseback en route to the "lost mines" rediscovered by the former some months before. They were supplied with pinole (parched-wheat meal), bread, cheese, sugar, coffee, and tobacco for a week's subsistence, with two 2-gallon and two 1-gallon canteens, and had also a dozen pounds of pressed alfalfa and twice as much rolled barley for the horses.² Jesus is 65, a former vaquero and nearly

² They were outfitted at Yuma by Jim Tucker, miner and rancher; they left there in the saddle after noon on August 12, having shipped a bale of hay and a bag of barley with some of their food and canteens to Wellton; camping on the banks of the Gila north of Blaisdell, they started early Sunday morning and reached Wellton about midafternoon, where they took their freight and fed and watered freely, leaving part of the feed for the return. They started for Tinajas Altas Monday morning "at the time of the morning star" (say three o'clock) and covered the thirty-odd miles in a little over eight hours.

typical Mexican, claiming familiarity with the country, but erratic and inconsequent and little dependable in statements of fact or in any other way; he rode his own grass-fed horse, which shrank, bronco-like, from barley. Pablo is about 40, of remarkably fine and vigorous physique—indeed, one of the best-built Mexicans known to me. In earlier life he was a sailor on Pacific vessels and afterward a wandering prospector and miner; he was tiding over the summer of 1905 by growing watermelons on a ranchita near Gila City. He measures about 5 feet 7 inches, weighs normally some 155 pounds, and is notably deep-chested and round-bodied, with—for a Mexican—exceptionally robust limbs; he is reputed a large eater and heavy sleeper, and is of phlegmatic disposition, given to drowsing in the shade rather than working in the sun—yet between periods of repose he is of energetic and pertinacious habit, walking barefoot or in sandals (in preference to riding) with a quick and strong up-springing gait carrying him by all but the best horses, openly scorning hunger and thirst and boasting ability to withstand far beyond ordinary men these habitual inconveniences of the range. In a word, he is a particularly fine type of the animal genus *Homo*—a most matter-of-fact man of action in his little world, albeit lightly burdened with acute sensibility, imagination, or other mentality; indeed, an ideal man to endure stressful experience. He rode Jim Tucker's best horse—an animal of exceptional bottom, well inured to desert work.

While their horses ate, Pablo and Jesus lunched with Jose and me, feasting on jerked cimarron (mountain-sheep meat), in addition to their own comestibles. Against my advice (which was to leave at 1 A. M. Tuesday, the moon being about the full), they set out for their El Dorado about five o'clock; but in half an hour they returned, having decided to wait until morning on the ostensible ground that the horses had drank but little, though in reality because my judgment had finally worked in. Next morning Jose stirred up Jesus, and the two pulled Pablo from his saddle-blanket for breakfast; and they got off at daylight. This was the real beginning of the journey—about 3:45 Tuesday morning, August 15.

Soon after midnight Jesus came in alone, with both horses, reporting that Pablo had sent him back from a point about 35 miles south-eastward to re-water, he himself going forward on foot with a 2-gallon canteen and a stock of pinole, under an agreement — an inane if not insane one in desert life—to rendezvous 24 to 30 hours later not on the trail but on the farther side of a nearby sierra. Jesus drank, ate, watered, fed, and struck the trail again (with five gallons of water, taking one of my canteens) about 3:30 A. M. on the 16th. Next morning about 7 he again came in alone with both horses, reporting that his own animal had broken down after a short distance and that he had

ridden the Tucker horse by a better route both to the rendezvous and to where he had left Pablo at the edge of the sand-hills; and that he had been unable to find either the lost man or his trail. He explained that Pablo had probably gone on to Agua Salada (as he had advised all along, misstating the distance, etc.), and proposed after resting to return to Wellton and Yuma. He was indeed exhausted, having ridden some 150 miles in about 52 consecutive hours; while his horse was practically broken down, and the Tucker animal tired. On putting together all statements from both Pablo and Jesus, I was in doubt as to whether or not Pablo had gone on toward Rio Sonoyta, though this seemed probable; yet I thought he ought to have another chance for his life, and so held Jesus at Tinajas Altas and sent Jose (an expert trailer among his tribe of trailers) out on the Tucker horse to find Pablo's track, giving him full instructions as to routes, places for smoke signals, etc. (for I knew the region better than he), and directing him to go to the limit of his horse's endurance and then to his own limit beyond. Jose carried a feed of barley, a couple of pounds of pinole and dates for himself, and two extra canteens; he got off about 10 o'clock Thursday, August 17. Stopping only to send up smokes, he followed old Jesus' ill-chosen trails and easily located the point at which Pablo had left him on the 15th; thence he followed the foot-trail with difficulty in the darkness of the early night. Reaching the sand-hills about moonrise, he left the horse and labored through the dunes seven miles further—then returned as he came, making signal fires here and there. Picking up the horse in the dawn and giving him a half-gallon of water from his hat, he arrived at camp in speechless exhaustion just before noon Friday, the 18th. I was convinced that further effort would be bootless, since it seemed probable that even if Pablo had not gone on to Agua Salada en route to Santo Domingo he could hardly still survive, for he had already been out over three days with only one day's water—and most of those who die from desert thirst expire in less time; so although Jesus and his horse were still unrestored and the Tucker animal had been moving almost steadily for 80 hours and over 225 miles, I packed Jesus off toward Wellton and Yuma to report his virtual abandonment of the man he had undertaken to guide and protect—supplementing his prospective oral report with a special delivery letter to El Padron (Jim Tucker), to be mailed at Wellton in time for the 2 o'clock train Saturday morning.³

So ended the first episode in the Pablo Valencia event, in the after-

³ Jesus started about four o'clock P. M. on August 18 and should have reached Wellton between one and two, thus getting the letter into Tucker's hands early the next morning, and he should have himself arrived in Yuma early Sunday morning, August 20; but he slumped characteristically on the Wellton stretch, and made a needless camp beyond, so that he and the letter arrived about the same time on Monday afternoon.

noon of August 18. I remained uneasy a day or two longer, and next day and the day after climbed a neighboring peak 750 feet high and walked out a few miles on the trail to seek for sign; then Jose and I fell into normal camp routine.

In the graying dawn of Wednesday, August 23, the grasp of sleep on me relaxed in a vivid dream recalling a picture often presented in the ganaderos (half-wild cattle ranges) of western Sonora—the picture of an orderly file of stock, led by a stalwart bull and trailing down to yearlings in the rear, the leader iterating his grave grumbling roar of assurance to the herd which at last—as on the range—rose in quick crescendo into the ear-piercing bellow of challenge and defiance to all other kine. I awoke at the dream-sound to realize its actuality, and turned my head half expecting to see the herd; instead, there stood Jose, just arisen from his blanket, looking down the arroyo. Seeing my movement, he asked: "What is it? I thought it was one of them roaring, lions, like in the Zoo." Now fully awake, I replied: "It must be Pablo; take the canteen." Though wholly incredulous, he mechanically seized a canteen and a strip of manta which with his coat made a pillow, and, after a call in reply, ran down the trail. I soon followed, carrying another canteen and a medicine case; and on the arroyo sands, under an ironwood tree, at the foot of the Mesita de los Muertos with its two-score cross-marked graves, came on the wreck of Pablo, with Jose already ministering unto him.

Pablo was stark naked; his formerly full-muscled legs and arms were shrunken and scrawny; his ribs ridged out like those of a starveling horse; his habitually plethoric abdomen was drawn in almost against his vertebral column; his lips had disappeared as if amputated, leaving low edges of blackened tissue; his teeth and gums projected like those of a skinned animal, but the flesh was black and dry as a hank of jerky; his nose was withered and shrunken to half its length, the nostril-lining showing black; his eyes were set in a winkless stare, with surrounding skin so contracted as to expose the conjunctiva, itself black as the gums; his face was dark as a negro, and his skin generally turned a ghastly purplish yet ashen gray, with great livid blotches and streaks; his lower legs and feet, with forearms and hands, were torn and scratched by contact with thorns and sharp rocks, yet even the freshest cuts were as so many scratches in dry leather, without trace of blood or serum; his joints and bones stood out like those of a wasted sickling, though the skin clung to them in a way suggesting shrunken rawhide used in repairing a broken wheel. From inspection and handling, I estimated his weight at 115 to 120 pounds. We soon found him deaf to all but loud sounds, and so blind as to distinguish nothing save light and dark. The mucus membrane lining mouth and throat was shriveled,

cracked, and blackened, and his tongue shrunken to a mere bunch of black integument. His respiration was slow, spasmodic, and accompanied by a deep guttural moaning or roaring—the sound that had awakened us a quarter of a mile away.⁴ His extremities were cold as the surrounding air; no pulsation could be detected at wrists, and there was apparently little if any circulation beyond the knees and elbows; the heartbeat was slow, irregular, fluttering, and almost ceasing in the longer intervals between the stertorous breathings.

The victim was, of course, unable to articulate or to swallow. Water was slushed over his face, head, chest, and abdomen, and rubbed into his limbs and extremities, the skin first shedding and then absorbing it greedily as a dry sponge—or more exactly, as this-season's rawhide; dilute whiskey was forced into his mouth and rubbed on his chest with prompt effect (doubtless the greater because Pablo was a habitual teetotaler); and when in half an hour swallowing motions began feebly, both whiskey and a powerful heart stimulant (digitalis-nitroglycerin-belladonna tabloid triturates) were administered internally. In an hour he drank, though most of the water was immediately expelled from the stomach; in two hours he began to partake of food—a bird fricassee with rice and shredded bacon; in some three hours (soon after sunrise) he was able with some help to walk into camp. By this time he had ingested and retained about $2\frac{1}{2}$ ounces of whisky, with 5 ounces of water, and 2 or 3 ounces of food; his external tissues were saturated and softened, circulation was restored sluggishly in his extremities, and his numerous wounds begun to inflame or exude blood and serum. Articulation slowly returned, and in a cracked voice, breaking involuntarily from bass to falsetto, he began to beg pathetically for “agua, agua,” and to protest against the “dust” which we were compelling him to sip; he even failed to recognize coffee, which was given in small quantities.

As Pablo's strength returned in the course of the day, two abnormal conditions developed: the more disturbing at the outset began with local inflammation about the cuts, scratches and bruises suffered in creeping the last seven miles over a cactus-dotted and often stony plain, and extended into a general feverish and irritable state doubtless intensified by the long-continued nerve-strain; it was accompanied by pains and inflammation in wrists and hands, feet and ankles, and at one stage I feared loss of nails and sloughing of phalanges, which might have ensued in a less pure and invigorating air. The other disturbing condition was the passing of the hoarse, stertorous breathing into a sort

⁴ The distance to which the moaning carried was doubtless due partly to the funnel-shape gorge in which the sound was concentrated, while the audibility was, of course, enhanced by our habitude to the desert stillness, seldom broken save by chattering of ravens, cooing of pigeons, or whistling of quails, all beginning later in the day.

of spasm, apparently affecting stomach, diaphragm, intercostal muscles, and the upper part of the body generally—a combined retching and hiccoughing so severe as to rack the victim from head to foot and induce violent vomiting. A preparation of bismuth in tablets gave some relief, and pepsin-pancreatin tablets taken with food were beneficial; yet the spasms were so severe and persistent as to threaten fatal exhaustion. Toward evening urinary excretion began feebly, at first accompanied by blood and mucus; it was over two days before movement of the bowels began. The camp dietary was then reduced, but the birds (California quail and Sonora pigeons, shot fresh every morning) fricasseed with rice and minced bacon were nutritious and easily digested: though we longed for watermelon for him. On the third day (Saturday, August 26) vision and audition became normal, and Pablo began to notice things in an infantile way, as if the power of apperception were awakening; he stared at and evidently recognized shrubs and rocks about the camp, scrutinized and curiously felt of his own hands and feet, and also clearly recognized water; while his mind began to place Jose and me in his fabric of definite cognition—for we had been mere shadow-objects before. He surprisedly examined his wounds, which were then healing satisfactorily, and described the spasmodic retching as due to the forming of a "ball" in his stomach. On the second day he had muttered, half to himself, the events of his journey; on the third, he recounted them spontaneously and in reply to inquiries in such manner as to yield a definite and doubtless fairly trustworthy itinerary.

On Sunday, August 27, came in Jim Tucker with four-horse wagon and extra saddle animals, accompanied by two or three men (all friends of Pablo) to search for trails and remains; at first the patient hardly knew them, and shrank from them as creatures of a nightmare; but they showered him with attentions and forced on him heaping plates of stew, frijoles, fried bacon, and whole loaves of soggy Dutch-oven bread, with the result that the spasms were intensified and accompanied by effusions of biliary matter streaked with blood. For a day Tucker planned going on to the "lost mine," leaving Pablo with me; but the relapse was so serious and the recurrent spasms so severe that by Monday noon I felt compelled to prescribe a return to Wellton. About 4 o'clock the spasm-racked wreck was bedded in the wagon; about 11 p. m., when a halt was made to rest the team—for the nearly trackless sands dragged heavily—I judged there was an equal chance of getting the patient alive to Wellton; at 2 we were moving again, and about 7 we drew into the clean sand-wash in the rear of the station. Twenty minutes later we had raw eggs, and Pablo's crisis was past. Later in the day some watermelons were secured; and next morning we were in Yuma. Pablo was guarded for a few hours, but spent practically the whole of August 31

deliberately and methodically devouring watermelons, with occasional lapses into slumber; and in a week he was well and cheerful, weighing 135 pounds or more—though his stiff and bristly hair, which had hardly a streak of gray a fortnight before, had lost half its mass and turned iron-gray.

The nature of the case and the severity of the stress successfully encountered by Pablo Valencia cannot fully be understood without considering the utterly desert character of the region—than which there is none worse in North America save Death Valley and a few other basins not opening toward the sea,—and the torridity of the climate and season. The 100-day record (May 21 to August 28) of temperature and humidity at Tinajas Altas served to define a vapor-zone about Gulf of California in which a large part of our storm-centers find origin; and although most of Pablo's route lay outside this zone and in a hotter and drier belt, the record from the evening of August 14 to the morning of August 23 approximately indicates the attendant climatal conditions. This record, with the means for the 9-day period and also the averages for both August 1-28 and for the 100-day period, is appended—from which it will appear that Pablo was favored by exceptionally low temperature and high humidity; yet the maximum temperatures ranged from 88.5 to 103.2 (averaging 95), and the minimum night temperatures from 78.4 to 93.2 (averaging 84.2), i. e., were always above that somewhat variable yet most important physiologic value which may be termed the *perspiration-point*: the point at which the burden of elimination is transferred either from kidneys and lymphatics to the skin, or from the epidermal to the internal eliminative structures, as the temperature-measure is passed. Pablo was also exceptionally favored by clouds; for although the sky was never wholly overcast, the average of morning and evening cloudiness reached two-tenths of the total sky. He was fortunate, too, in the high relative humidity for a desert range; at Tinajas Altas the percentage of aqueous vapor ranged from 18 to over 60 (averaging 38), indicating that along his route it probably oscillated between 15 and 55.

Pablo's itinerary, taken partly from his nearly meaningless maunderings as speech returned, but chiefly from connected statements largely in reply to inquiries, runs thus:

Tuesday, August 15: Left Tinajas Altas at 3:45, horseback, with Jesus; rode some 35 miles, reaching "sand-hills" about one o'clock; thence afoot with 2-gallon canteen (full at starting), pinole, tobacco, serape, duck coat, prospector's hammer, canvas specimen-bag, cigarette papers, and matches, faring some ten miles through the sands before stopping to sleep. Drank three or four times, and took pinole twice.

TEMPERATURE AND MOISTURE.

DATES	TEMPERATURE							MOISTURE			
	SELF-REGISTERING THERMOMETERS				PSYCHROMETER		HUMIDITY		Rain (in.)	Cloudiness (tenths of sky)	
	Maximum	Minimum	Range	Mean	Dry bulb	Wet bulb	Depress'n	Dew point			Relative Humidity
August 14. 8 p. m.	99.1	85° 1	14.0	92° 1	91° 0	65° 0	26.0	48° 0	23.0%	0	0.1—
" 15. 8 a. m.	91.8	76.8	13	85.3	90.5	62.5	28	41	18	0	1—
" 15. 8 p. m.	98.9	90.9	8	94.9	92	66.5	25.5	51	25	0	1—
" 16. 8 a. m.	92	81	11	86.5	86	69	17	60	42	0	2—
" 16. 8 p. m.	99.5	85	14.5	92.2	91.5	71.5	20	61.5	38	0	1—
" 17. 8 a. m.	94	79.7	14.3	86.8	93	68	25	54	26.5	0	1—
" 17. 8 p. m.	103.2	93.2	10	98.2	95	69	26	54	25.5	0	1—
" 18. 8 a. m.	95	83	12	89	87	76	11	72	60.5	0	1—
" 18. 8 p. m.	96	86.6	9.4	91.3	88.5	73	15.5	66	48	0	8—
" 19. 8 a. m.	88.5	80.5	8	84.5	87	74	13	69	54.5	0	1—
" 19. 8 p. m.	98.4	85.4	13	91.9	90	73	17	65	44	0	0—
" 20. 8 a. m.	90	81	9	85.5	87.5	73	14.5	66.5	50	0	1—
" 20. 8 p. m.	99.1	87.3	11.8	93.2	89	71.5	17.5	63	42.5	0	1—
" 21. 8 a. m.	89.9	78.4	11.5	84.2	88	74	14	68	52	0	6—
" 21. 8 p. m.	91	87	4	89	90	71	19	62	39	0	6—
" 22. 8 a. m.	92.1	81	11.1	86.7	91	69	22	57	32.5	0	2—
" 22. 8 p. m.	100	90	10	95	91	71	20	61	37.5	0	7—
" 23. 8 a. m.	91.8	82.1	9.7	86.9	91	69	22	57	32.5	0	2—
Means, August 14-23.	95	84.2	10.8	89.6	89.9	70.3	19.6	59.8	38.4	0	2—
Average August 1-28.	101.8	81.7	20.1	91.7	92.3	69.7	22.6	56	32.9	.004	12—
Average 100-day period	99.3	77	22.3	88.2	88.9	64.5		46.5	27.1	.0012	.067—

Wednesday, August 16: Starting with the rise of the morning-star, reached the ledge of which he was in quest about midforenoon; after collecting specimens, erected monuments and posted notices for a mineral claim, finishing this work before midday. Ate a little pinole and drank sparingly (as he had done before starting), for the canteen was nearly empty. Starting northward, began search for a road described (falsely) by Jesus, and straggled rather aimlessly over the sands, moistening his mouth occasionally but not swallowing water, until the canteen was empty; at nightfall reached an arroyo in which he fancied signs of water. In the darkness of the early night (before moonrise) abandoned his nuggets, and soon after threw away his stock of pinole and his coat and serape. Failing to find water, he sought sleep in the sands; and when awakened by mouth-dryness obtained some relief—after the fashion of all Mexicans and most Americans in like cases—by occasionally filling his mouth and gargling his throat with urine.

Thursday, August 17: Set out early, seeking trails and tinajas, and working northward; unable to withstand the heat of midday, he lay down in an arroyo and ate calabasitas (wild gourds of intense bitterness), which his stomach rejected. Arising as the sun declined, he threw away shoes and trousers (with money, knife, and tobacco in the pockets), and wandered on northward, finding occasionally old trails which either faded away in a few miles or else led into sands or impassable rocks—trails mostly figments of disordered fancy. One led to an immense tinaja; but it was dry. During the day he had frequent recourse to urine, though he nearly lost the power to swallow; during the night he saved every drop of the excretion in the canteen, which he still carried.

Friday, August 18: In early morning he walked a few miles, but was overcome by the torrid heat and crept under the shade of a paloverde overhanging an arroyo; toward evening he arose, and chewed paloverde twigs with little effect save to irritate mouth and throat. Setting out northward before sunset he found a mescal (a variety of agave) and chewed the stipes, extracting a little moisture; at sunset he caught a few flies and spiders, which he chewed and tried to swallow. Still he wandered northwardly, having in mind first the rendezvous with Jesus, then the Old Yuma Trail he had traversed years before. Toward morning he became convinced that Jesus had deliberately misled and abandoned him with murderous intent in the plan of thus securing his El Dorado; and his wrath spurred him on with the aim of knifing his deceiver—a potent incentive which carried him miles and doubtless saved his life. He continued to relieve mouth-thirst with urine.

Saturday, August 19: In early morning he found mule-wagon tracks and recognized the Old Yuma Trail,⁵ which he followed, but

⁵ Here I first locate him. Apparently he was then just west of Tule Playa and east of the adjacent sandhill-malpais ridge—i. e., about 27 miles east of Tule well and 50 miles from Tinajas Altas. This trail coincides closely with the International Boundary; Colonel D. Du B. Gaillard gave a good account of it in the *Cosmopolitan Magazine* (October, 1896, pages 592-603) about the time the last Boundary Survey was completed; and I described it, with illus-

soon fell under the heat and lay all day in an arroyo. In the afternoon he saw one of the large light-green scorpions of the region; it looked luscious, and he captured it, ground off its sting with a stone, and devoured it. As before he used urine, swallowing a part with great difficulty. Toward evening he resumed journeying northward, often falling; near morning he found (or thought he found) Jesus' trail where he had wandered in search of the hopeless rendezvous set for the 16th. Throughout the night he caught occasional glimpses of a coyote trailing him. During all of Saturday and throughout this night on the trail he was buoyed by a new incentive—the hope of reaching Tule Well and casting himself into the moist mud at its bottom and at the worst dying in the dampness and coolness 37 feet below ground; he felt the notion half insane and the hope wholly hopeless, yet unto them he clung as to an inspiration. Meantime, he constantly sought insects to chew, and continued using his urine, now “mucho malo” (very bad).

Sunday, August 20: In early morning he pushed on westward, often sitting down, sometimes falling, and tried crawling—with little success. His vision was vague; the mountains danced, and the cactus and chapparal clumps moved to and fro before his eyes; and before full day he passed the first Tule Well guidepost unseen (Tule Well is a mile or two north of the main line of the trail) and kept on westward to the second one, west of the well—where the sun was growing strong, and he was too weak to work back along the side trail. Regarding his passing of the well as an omen of speedy relief, he hung his hat on the guidepost, and, after creeping to one or two tinajas—known to him of old—which he found dry, he lay all day in the shade of the rocks, utilizing every drop of urine, which now dripped scantily and involuntarily. Toward evening he again bethought himself of Jesus and the pleasure of knifing him, and was inspired to further effort; but he fell so often as he struggled forward that he was only at a remembered camp-site $3\frac{1}{2}$ miles west of Tule Well when day broke again.

Monday, August 21: On reaching at dawn the camp-site, only 19 miles from Tinajas Altas, he felt sure of relief and stretched himself across the trail so as not to be missed by rescuers—there he dozed and slept, starting up frequently at fancied sounds of wheels and hoofs; the buzzards, which had followed him for two days, now came almost within hand-reach. The sleep and coolness (only 91 degrees) of the day and the short distance traversed the night before had their effect; he felt stronger, and toward sunset he set out again westward along the trail, buoyed by the certainty of at least finding full canteens (of which Jesus had indeed left two, at impossible places). The course was down grade, along the arroyo and across the black malpais mesita on which the ancient graves lie thick; and his hope was strong, though the mountains were no longer seen in their places and he had to feel the trail with his hands every few yards

trations of Tinajas Altas and the graves on the neighboring mesita, in “The Old Yuma Trail,” *National Geographic Magazine*, Volume XII, 1901, pages 103-107, 129-143.

to be sure he went aright. He often thought he saw Tinajas Altas with abundant water and food just before him, yet was not wholly cast down on feeling a landmark he knew to be miles away; so he made, with many rests and naps, twelve miles.

Tuesday, August 22: In early dawn his mind was reaching out buoyantly to Tinajas Altas as but a few steps away, when he half saw, and then fully felt all over, the six-mile guidepost (about seven miles from camp), and awoke to the sad certainty that no canteen hung there, and the still more crushing realization that he could not cover the remaining miles of sand—for his urine had ceased to flow hours before, and he felt his last recourse gone.⁶ As the sun rose he sought the shade of a shrub and there knelt in final prayer for the dying; then he laid himself down with feet and face to the eastward, made the sign of the cross with a pang over the absence of consecrated water, and composed himself for the end. There—and this was his clearest concept, unreal though it be—with the rising of the sun he died, and his body lay lifeless under the burning rays, though his innermost self hovered about, loth to leave the material husk about which the buzzards waited patiently. The sun swung across the shimmering vault, and darkness fell; in the chill of evening (fortunately an exceptionally cool night—just above 82 degrees) some vague shadow external to his Ego stirred and then struggled aimlessly against chapparal and cactus along the most trying stretch of El Camino del Diablo. Sometimes he felt half alive and wrung by agony of severing spirit and flesh; oftener he felt that the naked body was pushed and dragged and belabored and tortured by something outside; he knew its voice tried to cry out in protest or call for rescue, but did not feel the voice his own. So the night dragged on and on, until at early dawn the vague consciousness knew itself near the camp with the certainty of relief, and was dimly surprised at the bellowing break in a final call.

Wednesday, August 23: After uttering this call, he crawled some 50 yards down the last descent to the arroyo below the Mesa of the Forty Graves. Of this day, with its physical shock and psychical break, Pablo remembered nothing clearly.

Summarily: Pablo was in the desert just eight days (and nights), with one day's water; he rode in the saddle 35 miles and walked or crept between 100 and 150 miles. For nearly seven days, or fully 160 consecutive hours, he was wholly without water from sources exterior to his system, save the few drops extracted from the scorpion, agave stipes, and insects—a desert record without parallel known to me: for half the victims of desert thirst die within 36 hours of deprivation, another quarter within 48 or 50 hours, and nearly all known to survivors

⁶ Pablo thought he left at the six-mile guidepost his hat and underclothes, though they were not found on subsequent search; it is more probable they were left at the western Tule Well guidepost, where he remembered hanging his hat as a signal. His trail here showed that he seldom walked, and then but for a few steps, only to fall again, and mostly crept wanderingly amid the thorny clumps, though sticking fairly to the trail.

within 70 to 80 hours (three days and nights), or hardly half of Pablo's stress. For some five days (August 16-21) he consumed his urine; ordinarily, the reconversion of excreted liquid is hardly helpful if not wholly harmful, yet in Pablo's case it seems to have materially prolonged vitality. For nearly nine days (August 17-26) his bowels were inactive, and for two days his kidneys failed to function. The eight-day siege lost him 35 or 40 pounds (or 25 per cent.) of his weight, chiefly through evaporation from skin and membrane; he also suffered fully two-score cuts, scratches, and bruises, each of sufficient severity to give some shock to the system; and his mouth, esophagus, and stomach were seriously deranged by his desperate efforts to relieve the thirst-torture. The most striking feature of the case was the absence of wholly insane delirium; he was, indeed, affected by the revulsion against gold, as shown by the abandonment of his nuggets and the casting away of his money; he was possessed of hallucinations as to the wetness of sands, the moisture of articulates and shrubs, and the nearness of Tinajas Altas; he was obsessed by the desire for vengeance against Jesus, the dream of casting himself in Tule Well, and the delusion of death—yet he never lost his trail-sense, and apparently squandered little vitality in those aimless movements that commonly hasten and harden the end of the thirst-victim.

II.—THIRST IN GENERAL.

In viewing thirst as a pathologic condition, it is needful to review the role of water in normal physiology. The average human body is about one-fifth solid matter and four-fifths liquid, i. e., H_2O or water. This liquid forms the chief distributing or circulating agency of the organism; it is no less essential to assimilation and metabolism than to circulation in the artero-venous and lymphatic systems; it forms the bulk of the softer tissues and enters into the composition of the harder, and permeates or flows through all structures either by osmosis or through specialized vessels. As an agency connecting the individual with the external, i. e., with environment, water is far more important than "food," more important even than air; water streams through the entire organism, entering chiefly through the alimentary system and escaping through the skin and membranes as well as through the main excretory channels; water as liquid and vapor in connection with the lungs and skin affords the chief means of equalizing and controlling the temperature required for organic existence; and water is undoubtedly the primary requisite for that ionization to which it is customary of late to reduce the chemistry of vital existence and growth. It is in harmony with the essential and distinctive role of water in the normal organism that the average human dietary embraces 4 to 12 (averaging about 6) parts of liquid to one part of solid matter—a mean ration for adults of, say,

six pounds of liquid and one pound of dry food; it is in harmony, too, with the demonstrations of Dr. Tanner and others that with water a fast of forty days is feasible but without liquid is fatal in far less time: indeed, water is to be regarded not so much a mere solvent of food-matter as an actual aliment—and by far the most important aliment in the animal economy.⁷ Accordingly, in this view of the role of water in the normal body, thirst, in extreme stages at least, is seen to constitute and express a general and fundamental derangement of the vital system.

It may be convenient to define three types of thirst, i. e., (1) the Ordinary Thirst, experienced in humid lands, caves, mines, etc., in which the air is charged with aqueous vapor and the tissues little affected by salts external to the system; (2) the Thirst of the Sea, experienced where the air is heavily charged with vapor and non-potable liquid abounds, while the tissues are subjected to the action of salts; and (3) the Desert Thirst experienced where water is lacking both as liquid and as vapor, and where free salts external to the system are (commonly) absent. The third of these types is, of course, the most distinctive; and it is this alone which I have had opportunity to study in sufficient detail to warrant discussion. My data embrace personal observation on a score or more of thirsty men at divers times and in sundry places; reminiscences gathered personally from a dozen or more survivors of extreme thirst, and from a considerably larger number of men who have chanced to succor the thirsty; portions of the abounding thirst-lore in the arid districts of Arizona, California, Nevada, New Mexico, and Sonora; numerous newspaper and magazine accounts—all more or less pointless and inaccurate; a few unwittingly faithful records like that of Manley in "Death Valley in '49"; conferences with men like artist Lungren, naturalist Merriam, litterateur Lummis, et al., who have both seen and felt; and—safest of all—several personal experiences, one extending over half way through the successive stages.⁸

It is convenient to recognize five phases of desert thirst, falling into

⁷ The role of water in the human system and its place among food-substances are discussed more fully in "Potable Waters of Eastern United States," Fourteenth Annual Report of the U. S. Geological Survey (1894), pages 5-8; and incidentally in "The Seri Indians," Seventeenth Annual Report of the Bureau of American Ethnology (1898), pages 180-182. The reckoning of ratios of solids to liquids both in body and in food varies with modes of analysis, the interpretation of hydrates, etc., so that the values given above are to be regarded as illustrative and merely approximate rather than definitely quantitative.

⁸ A considerable part of the data were summarized in 1898 in an article entitled "Thirst in the Desert" in the *Atlantic Monthly* (Volume LXXXI, pages 483-488), originally designed as a contribution to the physiology of thirst to be presented before the Medical Society of the District of Columbia (in recognition of the honor of election as a "Member by Invitation"), and only through chance diverted to a purely literary medium; the quoted extracts beyond are from this paper.

three successive stages; the first phase and stage may be considered *normal*, while the remaining stages, each comprising two phases, are distinctively abnormal or *pathologic*—the earlier being marked by *functional derangement* and the later by *structural degeneration*. The phases ensue in fixed order though the rate of progress is variable, ranging—according to heat, air-dryness, stress of exercise, and (more than all else) inurement of the sufferer to desert life—from, say, six hours to several days; while certain features of the later phases may be more or less masked when the progress is retarded either by favorable physical conditions or by special fitness of the organism.

1. *The Stage of Normal Dryness.*—*a.* The normal system deprived of water reacts mechanically with a sensation of dryness in mouth and throat, and instinctively in the general craving for liquid denoted as thirst; in conditions of extreme aridity and heat the sensation of dryness and the instinct of thirst frequently arise without actual deprivation in persons not inured to desert life. If not relieved, the initial condition passes into general uneasiness, discomfort, or irritation, accompanied by rise of temperature and other febrile symptoms. Commonly the condition is alleviated by a moderate quantity of water; sometimes fruit acids and other sapid substances exciting flow of saliva are requisite for relief; and in the practical life of the range a pebble or nail carried in the mouth is often efficacious. This stage—and phase—may be of little consequence save as the beginning of a series; it is experienced again and again by all men of arid regions, and excites annoyance rather than apprehension on the part of the patient, hilarity rather than pity among the company—it is the *clamorous* phase, or the stage of complaining.

2. *The Stage of Functional Derangement.*—*b.* In the incipient phase of pathologic dryness a general febrile condition becomes marked and is accompanied by special local symptoms; saliva and mucus in mouth, throat, and nostrils become scant and sticky, and there is a feeling of dry deadness of membranes extending to the epiglottis and even into the lungs—the sensation of inbreathed air changing from one of refreshing coolness (the chief physical pleasure of life in the desert) to one of oven-like heat; the tongue may cling irritatingly to the teeth, or stick to the roof of the mouth; a lump seems to rise in the throat and starts endless swallowing motions to dislodge it; discomfort and pain run from throat to ears along the eustachian tubes and through the tissues; the tympana may snap and drum annoyingly, while the ear-openings itch and the eyes smart. There is a feeling of fullness in face and head (doubtless due to shrinking of the skin), usually accompanied by headache and throbbing pains in the nape and down the upper spine; the hearing is disturbed and seeing capricious, so that illusions and hallucinations—especially the delectable pictures engendered by the desert mirage—spring constantly unless checked by connected effort; irasci-

bility arises, and companions quarrel and separate, perhaps to reunite for the very satisfaction of further dispute; the solitary sufferer may soliloquize, largely in impassioned invective—though the voice becomes cracked, husky or hoarse, and given to unexpected breaking into high tenor or dropping into an absurd whisper. The intellections are insensibly distorted more and more as the phase advances; prejudices are intensified, unreasoned revulsions arise against persons and things, while water and wetness are subconsciously exalted as the end of all excellence; the victim may gravely, after deliberate discussion in his quavering and ill-controlled voice, discard hat or shoes,—for it is in this stage that Mexicans generally and Americans frequently begin to strip themselves of clothing—or spurn the gold which he has been seeking or the tobacco which has been his solace, or perhaps burden himself with a heavy cask or fragile demijohn. The face grows pinched and care-marked, the eyes bloodshot and perhaps tearful, the movements ill-aimed, the utterances capricious, while the temperature rises and the pulse quickens: the sufferer is a walking fever patient, passing or passed into a delirium usually wild and paralyzing in the tenderfoot, but concentrated on a central instinct in the desert habitue—the instinct of the trail, or the way to water. The disordered state of body and brain is often revealed by ceaseless talk: the sufferer strains tongue and throat to “talk and talk and talk, without prevision of the next sentence or memory of the last—and all the talk is of water in some of its inexpressibly captivating aspects. A group of ranchmen, tricked by an earthquake-dried spring, craked and croaked of rivers they had forded in '49, of the verdure of the bluegrass region in which one of them was born, of a great freshet in the Hassayamp' which drowned the family of a friend and irrigated the valley from mountain to mesa, of the acre-inches of water required to irrigate a field seeded to alfalfa, of the lay of the land with respect to flowing wells, of the coyote's cunning in 'sensing' water five feet down in the sand, of the fine watermelons grown on Hank Wilson's ranch in Salado valley; now and then articulation ceased and lips and tongue moved on in silent mockery of speech for a sentence or two before the sound was missed, when with painful effort the organs were whipped and spurred into action and the talk rambled on and on—all talking slowly, seriously, with appropriate look and gesture, not one consciously hearing a word. When I was deceived into dependence on the brine of a barranca in Encinas Desert, thirst came, * * * and some of the party babbled continuously of portable apparatus for well-boring, of keeping kine by means of the bisnaga—a savagely spined cactus yielding poisonless water—and reveling in milk, of the memory of certain mint juleps in famous metropolitan hostelrys on the farther border of the continent, of the best form of canteen (which should hold at least two gallons—three would be better); they were bright men, clear and

straight and forceful thinkers when fully sane: yet they knew not that their brilliant ideas and grandiloquent phrases were but the ebullition of incipient delirium, and seriously contracted for five gallons of ice-cream to be consumed by three persons on arriving at Hermosillo, and this merely as dessert!" This phase is well known on the range, where many survive it and some delude themselves with the notion that it marks all there is of thirst; and scores of survivors have hit on the same expression to denote it: it is the *cotton-mouth* phase.

Thirst in this phase is best relieved by water—water swallowed in quarts, preferably a gill at a gulp with time for breathing between, and snuffed anon into the nostrils—water also slushed over face, head, neck, and chest: and where conditions permit, hot coffee or soup, the nearer the scalding point the better. Some desert rovers limit the quantity—wisely when the water is salt-charged or microbe-laden,—though there is little risk to the habitue if the water be pure; the tenderfoot may overcharge his system and so burden his heart and invite collapse next day. When water is scant (as always on the range and often in camp) it may be economized by a method well known in all arid regions—that of alleviating local dryness of the buccal and other membranes by sipping and sniffing a few drops at a time, and allowing the general condition to take care of itself. Many vaqueros and prospectors become artists in mouth-moistening and carry canteens only for this purpose (depending on lavish draughts at camp to supply the general needs of the system), and unwittingly follow the example of desert plants in habituating their external tissues to conservation rather than evaporation of the organic water: the sipped liquid lubricates the membranes, permeates both cavities and tissues, facilitates automatic swallowing of saliva and spitting of effete mucus, and compensates that evaporation accompanying respiration which most effectively controls the body-temperature—as demonstrated by the sweatless but panting dog. On the empirical practice of the range even expert medicine may hardly improve; and unless complications arise, dry medicaments are useless—or worse.

c. [The later phase of functional derangement is an intensification of the earlier; saliva ceases, and membrane-mucus dries into a collodion-like film which compresses and retracts the lips, tightens on the tongue until it numbs and deadens, shrivels the gums and starts them from the teeth, and shrinks linings of nostrils and eyelids giving irritating sensations of dust and grit; tears fall until they are gone, when the eyelids stiffen and the eyeballs set themselves in a winkless stare; the distal tongue hardens into a senseless weight, swinging on the still-soft root and striking foreignly against the teeth with the movement of riding or walking; articulate speech ends, though hoarse moanings or wierdly unhuman bellowings may issue from the throat. Gradually the shrinking extends from membrane to skin; numbness creeps over the face, then over

the hands and under the clothes, imparting a dry, rattling, hush-like sensation so nerve-trying that few longer resist the impulse to cast off clothing in automatic outreaching for relief; the feeling of fullness in the head increases and extends to the chest; the sufferer spasmodically snatches at hat and hair and tears the scalp with his nails, while breathing becomes labored and gasping; the heartbeat grows slow and heavy, and each pulsation brings kaleidoscopic gleams before the eyes and crackling and tearing noises in the ears, perhaps passing into singing sounds simulating—and sometimes mistaken for—sweet music from some unseen source; the head throbs painfully, and excruciating twinges shoot from the nape down the spine and through neck and shoulders; the hearing is more and more disturbed and the seeing distorted by the desiccation of the tissues, and hallucinations arise constantly to pass quickly into complete delirium in all but the best-inured, and even in these unto insanity of all senses save that of the trail. When Doctor Merriam was caught on the threshold of this phase of thirst he was impressed by the labored beating of his heart, and gained a sense of the gradual thickening of his blood as its liquid portion evaporated; "he was unable to see, or saw in mirage-like distortion when they were pointed out to him, the familiar birds and mammals of which he was in search. A prospector, later in the stage, tore away his sleeve when the puzzling numbness was first felt; afterward, seeing dimly a luscious-looking arm near by, he seized it and mumbled it with his mouth, and greedily sought to suck the blood; he had a vague sense of protest by the owner of the arm, who seemed a long way off, and was astounded two days later to find that the wounds were inflicted on himself. Deceived by a leaky canteen on the plateau of the Book Cliffs of Utah, I held myself in the real world by constant effort, aided by a bit of mirror an inch across whereby forgotten members could be connected with the distorted face in which motionless eyes were set; yet I was rent with regret (keen, quivering, crazy remorse) at the memory of wantonly wasting—actually throwing away on the ground!—certain cups of water in boyhood, and gloried in the sudden discovery of a new standard of value destined to revolutionize the commerce of the world—the beneficent unit being the rational and ever-ready drop of water. I collected half a dozen double-eagles from each of four pockets, tossed them in my hand, scorned their heavy clumsiness and paltry worthlessness in comparison with my precious unit, and barely missed (through a chance gleam of worldly wisdom) casting them away on the equally worthless sand." With the advancement of this phase, fever burns more and more fiercely; yet several observers have concurred in denoting it by perhaps the most distinctive local condition: it is the phase of the *shriveled tongue*.

In this phase, too, the thirst is relieved only by water—water in gallons, applied inside and out, but with caution as to rate lest the desiccated

tissues be saturated so suddenly as to set up dangerous disorganization. Save in cases of the strongest constitution, the water should be supplemented either by some febrifuge (perhaps aconite) or, if the sufferer is so inured that his tissues are toughened, by a heart-tonic to hold up the circulation despite the dilution of the blood as the alleviating water finds its way into veins and arteries. In the absence of water little can be done: heart-stimulants or nerve-sedatives might be beneficial if available, though alcohol usually does more harm than good; the experiment of moistening membranes of mouth and throat (and of nostrils and windpipe and bronchia by inhalation) with glycerine—perhaps dilute—would be worth trying; while unguents applied to the tightening skin of chest, neck, and head might be beneficial. The over-stressed system seems to respond sluggishly and slightly to ordinary drugs; when I left my party in Seriland in the closing days of 1895 and trudged over the sierritas and sand-wastes 55 miles to the ranch of San Francisco de Costa Rica for water and less essential supplies, all liquids in the medicine case (except laudanum and castor-oil) were consumed; a brandy and blackberry compound, listerine, extract of witch-hazel, sweet oil, cascara extract, eye-water, et al; but no effects were reported—or detected. It is in this phase if not before that most sufferers are led, either by aimless instinct or the reasoned desire of keeping membranes moist, to have recourse to urine—either their own or the still saltier stale of their stock: a desperate device which sometimes saves life at the cost of some poisoning of the system, but doubtless hastens the end of the inured.

3. *The Stage of Structural Degeneration.*—d. The passage of the thirst-patient into the earlier phase of this stage depends largely on his physical condition, especially his inurement to heat and dryness (as well illustrated by the case of Pablo Valencia); the tenderfoot makes the transition quickly and completely, while the well-inured victim whose membranes and skin are toughened and habituated to conservation of organic water may resist the tissue-disorganization up to and even beyond dissolution when the air is dry enough and the heat high enough—the dissolution in this case being a progressive mummification of the initially living body, beginning with the extremities and slowly approaching the vital organs. In the ordinary case the fourth phase begins with an acceleration of the drying process due to disorganization of external tissues: the collodion-like coating on the lips cracks open and curls up, and the clefts push into membrane and flesh beneath so that thickened blood and serum exude; “this ooze evaporates fast as formed, and the residuum dries on the deadened surface to extend and hasten the cracking; each cleft is a wound which excites inflammation, and the fissuring and fevering proceed cumulatively until the lips are everted, swollen, shapeless masses of raw and festering flesh. The gums and tongue soon become

similarly affected, and the oasis in the desert appears in delirium when the exuding liquid trickles in mouth and throat; the shrunken tongue swells quickly, pressing against the teeth, then forcing the jaws asunder and squeezing out beyond them, a reeking fungus on which flies—coming unexpectedly, no one knows whence—love to gather and dig busily with a harsh grating sound, while an occasional wasp plunks down with a dizzying shock to seize or scatter them; and stray drops of blood escape the flies and dribble down the chin and neck with a searing sensation penetrating the numbness: for the withered skin is ready to chap and exude fresh ooze, which ever extends the extravasation. Then the eyelids crack and the eyeballs are suffused and fissured well up to the cornea and weep tears of blood; and as the gory drops trickle down the shrunken cheeks are welted with raw flesh. The sluggishly exuding ooze seems infectious; wherever it touches there is a remote, unreal prickling, and lo, the skin is chapped and dark red blood dappled with serum wells slowly forth. The agony at the nape continues, the burden of the heart-throb increases, but as the skin opens the pain passes away; the fingers wander mechanically over the tumid tongue and lips, producing no sensation save an ill-located stress, when they, too, begin to chap and swell and change to useless swinging weights * * *. The throat is as if plugged with a hot and heavy mass, which gradually checks the involuntary swallowing motion, causing anon a horrible drowning sensation, followed by a dreamy gratification that the trouble is over. The lightning in the eyes glances and the thunder in the ears rolls, and the pressing brow-bands tighten. The thoughts are but vague flashes of intelligence, though a threadlike clue may be kept in sight by constant attention—the trail, the trail, the elusive, writhing, twisting trail that ever seeks to escape and needs the closest watching; all else is gone until water is ‘sensed’ in some way which only dumb brutes know. * * * Rice remembered hearing his horse (which, startled by a rattlesnake, had escaped him twenty hours before, and which he had trailed in half-blind desperation) battering at the cover of a locked watering-trough with fierce pawing like that of a dog digging to fresh scent; the vaqueros, awakened by the horse, found the man wallowing, half-drowned in the trough; he always ascribed the bursting of his lips and tongue to his earlier effort to get moisture by chewing stray blades of grass (supplemented by urine), and he never consciously recognized the normal symptoms of the fourth phase. When my deer-path trail on the Utah plateau turned out of the gorge over a slope too steep for the fixed eyes to trace, I followed the ravine to stumble into a chance water-pocket with a submerged ledge and there soaked an hour before a drop of water could be swallowed; then, despite a half-inch cream of flies and wasps, squirming and buzzing above and macerated into slime below, I tasted ambrosia! A poor devil on the Mohave desert reached a neglected

water-hole early in this stage; creeping over debris in the twilight, he paid no attention to turgid toads and a sodden snake and the seething scum of drowned insects until a soggy, noisome mass turned under his weight, and a half-fleshed skeleton, still clad in flannel shirt and chaparajos, leered in his face with vacant sockets and fallen jaw: he fled, only to turn back later, as his trail showed, seeking the same water-hole, and during his days of delirium in the hands of rescuers raved unremitting repentance of his folly in passing the 'last water'." A bronco-thrown vaquero picked up by Don Pascual Encinas after three days of deprivation was expressively described by the strenuous old "Conquerer of the Seri" as "sweating blood and fighting buzzards;" and his phrase may fitly be applied to the phase of desert thirst in which the external tissues inflame and begin to break down in a *blood-sweat*; the phase is not in the books, but it is indelibly burned into some brains.

In this phase there can be little alleviation: for water, however judiciously administered, brings hurt rather than healing; and even if the degenerated tissues are reorganized, the cerebral and neural structures may scarce recover from the shock—the sufferer, like the Encinas foundling, or like press-reported Hoffman, sole survivor of the ill-outfitted Grindell expedition of 1905, remains little more than a gibbering imbecile for months if not for life.

e. In the final phase of desert thirst the external symptoms are little changed: "The benumbing and chapping and suffusion of the periphery and extremities continue, and in this way the blood and serum and other liquids of the body are conveyed to the surface and cast out on the thirsty air, so that the desiccation of the organism is hastened; perhaps the tumid tongue and livid lips dry again as the final spurts from the capillaries are evaporated; thirsty insects gather to feast on the increasing waste, and the unclean blow-fly hastes to plant its foul seed in eyes and ears and nostrils, while the greedy vulture soars low and the ravening coyote licks his chops." The internal or subjective symptoms may be inferred only through extension of the knowledge of earlier stages and from movements inscribed in the trail of the victim—for in the desert perception is sharpened and scarce-visible features in the track of man or beast open a faithful panorama to the trained vision of the trailer: "the wanderer, striving to loosen the tormenting brow-bands, tears his scalp with his nails and scatters stray locks of hair over the sand; the forbidding cholla, spiniest of the cruelly spined cacti, is vaguely seen as a huge carafe surrounded by crystal goblets, and the flesh-piercing joints are greedily grasped and pressed against the face to cling like beggar-ticks to woolen garments, with the spines penetrating cheeks and perhaps tapping arteries; the shadow of shrub or rock is a 'Tantalus' pool in which the senseless automaton digs desperately amid the gravel until nails and even phalanges are torn off; then the face is forced into the

cavity, driving the thorns further into the flesh, breaking the teeth and bruising the bones, until the half-stark and already festering carcass arises to totter toward fresh torment * * *. A child in a single garment wandered out on Mohave desert and was lost before the distracted mother thought of trailers; his tracks for thirty hours were traced, and showed that the infant had aged to the acuteness of maturity in husbanding strength and noting signs of water, and had then slowly descended into the darkness and automatic death of the fifth phase of thirst—had at last dug the shadow-cooled sands with tender baby fingers, and then courted and kissed the siren cactus even unto the final embrace in which he was held by a hundred thorns too strong for his feeble strength to break.”

In this final phase there is no alleviation, no relief save the end; for it is the ghastly yet possibly painless phase of *living death*, in which senses cease and men die from without inward—as dies the desert shrub whose twigs and branches wither and blow away long before bole and root yield vitality.

As I passed through Yuma, August 31, 1905, press dispatches were announcing a fatality from thirst in Death Valley, incidentally noting that it was the *thirty-fifth* of the season in that valley alone; unnumbered others occurred elsewhere during the same season, including a straggler whose remains were found two months later by the Jim Tucker and Pablo Valencia above mentioned. Does it not behoove the makers of medical science to assume seriously the duty of devising preventive and remedial measures against a death-cause so frequent, so widespread, so distressful, and so intimately connected with those organic functions and structures on which they speak with authority; and does not the behoof rest especially on the medical men of the Key City of the Southwest—Saint Louis?

SHOULD EDUCATION IN SEXUAL MATTERS BE GIVEN TO YOUNG MEN OF THE WORKING CLASSES?

BY L. DUNCAN BULKLEY, A. M., M. D., New York.

Few will deny that a certain amount of education or enlightenment along some medical lines is advantageous to the general public. Undoubtedly the information which has been given in later years in regard to the first aid to the injured, and those drowned, has saved many lives, and that in regard to tuberculosis is gradually working out benefits which will continue to increase as time goes on. Adequate knowledge concern-

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ing diet and hygiene cannot but result in good among all classes of the community, and personal hygiene is not the least important.

The question has recently arisen and has been studied by certain congresses abroad, notably those held in Brussels, and more recently by the Society of Sanitary and Moral Prophylaxis in New York, as to how far education in sexual matters will tend to the diminution of venereal diseases, which have been called *The Great Black Plague*, as these are well-known to be productive of serious results both to the guilty or unfortunate individual and to unnumbered others, wholly innocent. Is it not time that serious consideration should be given to the best means for checking a class of maladies, however they are first acquired, which are productive of such great loss to the state in the way of death, wrecked lives, disablement and consequent degradation, to say nothing of marital misery and broken homes? As one who has seen hundreds, yes thousands, of persons thus afflicted, in public-clinics and hospitals, I must answer emphatically, yes.

The question arises, what can be done? Not to attempt anything, and to leave matters just as they are means only an increasing spread of this class of troubles, until this country is as thoroughly infected as are many other localities in the world.

The various systems of police regulation and medical inspection which have been tried in various cities in Europe have not yielded the results which had been hoped. Very properly, thoughtful persons have developed the idea that efficient education and enlightenment would aid in more or less eliminating this source of social danger and result in great advantage to the community. The subject of the proper education of the more intelligent and educated classes has already been considered, and the question how far education in sexual matters should be given to the working classes is well worthy of consideration.

Every argument for instruction to the more enlightened students in high schools, colleges and seminaries applies here with a thousandfold more force.

Prostitution, as ordinarily recognized or rather as it flaunts itself before the public, refers generally, I believe, to the more educated, or at least to the more affluent classes of society; but it is a mistake to think that the evil is at all confined to them. Far below the gilded haunts of vice of the Tenderloin district lies the "red light" area of the great East Side, to which so much attention was directed by the public press some time ago. And far below this are the unspeakably low resorts of the water edge, where sailors and others are enticed and degraded and criminals of both sexes are fostered and made.

Social workers will certainly fall far short of their duty if they fail to extend a helping hand to the submerged tenth, and even to the criminal in his cell or the culprit in the reformatory or penitentiary. For venereal

diseases, with their manifold and direful results, so frequently reaching to and working havoc among those who are perfectly innocent, will never be checked until in some way even the lowest levels of society are influenced toward their prevention.

It is not necessary to enter upon any extended medical statements in regard to the ravages inflicted by venereal diseases upon innocent victims. But as a physician, who for many years has observed and studied this phase of the subject, I must say a few words to make later statements and arguments more effective.

While these diseases are undoubtedly communicated more frequently by means of sexual transgressions, medical records demonstrate absolutely that thousands, tens of thousands, yes hundreds of thousands, have acquired them quite as innocently as the child contracts measles, scarlet fever or whooping cough; that is, wholly apart from any sexual or other transgression. Indeed, no one can be absolutely sure of escaping infection in a perfectly innocent manner. This may, perhaps, to laymen seem a strong statement, but I am confident that every physician who is at all acquainted with the subject will bear me out in the assertion.

Syphilis is known to be extremely infectious during its early periods, not only from the first local sore, or chancre, but also from raw surfaces on the mucous membranes, known as mucous patches, which are often unnoticed and hardly suspected by the patient. To show how dangerous the disease may be, I may mention that one eminent syphilographer has recorded the fact that one single syphilitic woman who had come under his observation had succeeded in infecting with syphilis no less than three hundred men within a period of ten months. Imagine one small-pox patient being allowed to give the disease freely to three hundred individuals! But this, of course, is only the beginning, and these three hundred infected individuals go on giving the disease to others, and often in the most innocent manner.

It has been shown repeatedly that in private practice fully fifty per cent of the married women who have syphilis have contracted it innocently from their husbands. If to this item of the ravages of syphilis is added the large number of innocent children who have inherited the disease, and also the many thousands who have been accidentally infected on various parts of the body, often in the most surprising and unexpected manner, we see that this is indeed a disease which should no longer be ignored, and in regard to which ignorance might even be called a crime.

Through ignorance syphilis has spread to an alarming extent in Russia, where it is so common among the peasantry that it has long been regarded as a scourge in the widest sense of the word; in some villages at least one-quarter of the inhabitants are infected. It is estimated that fully seventy-five per cent of this is acquired innocently in family life and not through prostitution; though in each instance the disease started, possibly or probably, in some one who had acquired it immorally.

Gonorrhœa also has a frightful history sociologically, and the public, certainly the youthful public, are less informed as to its ultimate dangers, and more careless, if possible, in regard to guarding against them, than they are in respect to syphilis. Many consider the trouble as "no worse than a bad cold," and yet close observation has clearly demonstrated that the poison of gonorrhœa may be long latent, and that it can be, and often is, the cause of an enormous amount of disease, suffering and disablement, very frequently to innocent persons.

Reliable estimates have been made showing that fully twenty per cent of all blindness is due to gonorrhœal infection of the newborn. Also that fifty per cent of all involuntarily childless marriages are caused by gonorrhœa in the female, and of these forty-five per cent are due to marital infection by men. Finally, that eighty per cent of all deaths from pelvic diseases in women are due to the results of gonorrhœa.

Is it any wonder, then, that the medical profession, who have long been cognizant of such facts—which of late years have been accumulating with scientific accuracy—should have made various attempts to arouse the public, in order that the masses may be enlightened and guarded against this "great black plague" of venereal diseases, as they are now in a measure instructed to guard against the "great white plague," tuberculosis?

Both of these great enemies of mankind have heretofore been ignored through ignorance, and neglected through negligence.

If all could sit, as in earlier days I have sat, day after day in a venereal clinic in one of the hospitals or dispensaries, and could see the ignorance, carelessness and even recklessness exhibited by many from the poorer classes coming there with syphilis and gonorrhœa during their most infective stages, and could see their utter neglect of sanitary precautions and the indifference often shown in regard to spreading the disease, there would be no question but that a campaign of education and enlightenment is advisable and necessary to the great body of young men of the working classes.

Not only have I found such patients utterly ignorant of any possible dangers to innocent members of their families, but I have experienced the greatest difficulty, in the short time possible in the clinic, in making them understand the precaution which should be taken to prevent such accidents.

It is not necessary to go further into the consideration of the medical aspects of venereal infection, or rather the results occurring from infection by diseases which are usually classed as venereal, but it might be well to emphasize some of the sociological features connected therewith. The losses resulting to the community are great. Vast numbers of patients thus afflicted throng the clinics and fill the hospital beds in this country and Europe, and the loss of time, and consequently of earnings, can hardly be computed. In all this it is to be remembered that it is not only the

acute or early stages which produce incapacity and interfere with employment, but that the later results of neglected cases, in both men and women, are often most disastrous to health and strength. The misery which so often comes to the innocent wife should alone be sufficient to call for the utmost endeavors to diminish, at least, the ravages of this class of diseases. Unfortunately the acquirement of venereal diseases in the ordinary way is intimately connected with the abuse of liquor. For, as a patient recently remarked to me in my office, "Every one knows that without liquor there would be much less venereal disease." But in spite of this bad handicap to the success of the educational efforts, it can not be doubted but that with patient and intelligent labor much good can be accomplished.

Of the desirability of giving enlightenment to the mass of young men and women, which shall in some way aid in checking the "great black plague," I think there can no longer be any question. For at the present time the youth of the country, in all classes of society are left in absolute ignorance, and gain what information they have in regard to sexual matters from depraved associates, and are most naturally led by them into evil habits. In regard to the nature and danger of venereal diseases they are left entirely in the dark. Recently at the George Junior Republic a good friend had an earnest talk with one of the boys on the subject of sexual vice and dangers. The boy was greatly interested and took it very seriously and gratefully, expressing much wonder that no one had ever addressed him thus on the subject before.

It is recognized that the subjects under consideration are most difficult and delicate ones to handle, but all who have given much attention to them will agree that human thought and ingenuity should overcome the difficulties and find means for giving the enlightenment required and desired. The question now before us is only: Should this help be given to the young men of the working classes? and I think that enough has been said to show that there is urgent need of this; how it shall be accomplished is another matter, worthy of serious study and earnest purpose.

EDUCATION IN SEXUAL HYGIENE FOR YOUNG WORKING WOMEN.

MARGARET A. CLEAVES, M. D., New York.

Innocence and ignorance are not necessarily one and the same thing, although they are so regarded by many people of intelligence and broad culture. That there is an instinctive shrinking on the part of girls and

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women, whatever their class, from any discussion of sexual matters goes without saying. This fact, however, has no bearing on the question of the necessity of education in these matters for all classes.

To the question whether young women of the working classes should receive such education there can be but one answer. Knowledge in these matters is essential if they are to preserve intact their health, their procreative power and their purity. Ignorance is perhaps the most serious among the factors which work together to bring many working girls to ruin. The inducements in the way of dress, jewelry and amusements which are used to overcome the scruples instinctive to every woman would have far less weight if the consequences of indulgence were clearly understood. Every physician whose practice has brought him in contact with working girls can recall case after case in which ignorance and credulity have been traded upon with disastrous results to the girls. Many instances might be cited, from the writer's experience, in which the assurance has been given, and believed, that by permitting sexual intercourse various physical disorders would be cured. Had the girls in these cases been taught in the proper manner the fundamental principles of sexual physiology they would have known that the ills about which they were concerned could not be relieved in this way, but that instead they were running the risk of being committed for life to shame, loathsome disease and poverty.

Granting, therefore, the necessity for education in these matters, the question requiring consideration is how such education can be given.

From the medical woman's point of view all young women, no matter what their class, should receive such physiological education as would enable them to understand their special anatomical conditions and physiological functions and the relation of these special organs and functions to reproduction. This information should not be hurled at the individual or individuals as though the physiology of the sexual organs was of paramount importance, nor should it be given with bated breath as though it were a matter not to be thought or spoken of. It should follow upon a consideration of general physiology and be presented so as to form but an integral part of the whole. This can be done in a simple, forceful, dignified manner that will carry no suggestion of evil, but on the other hand help to unfold one of the most beautiful pages of nature's book, i. e., the relation of these functions under normal conditions to the grand creative plan. To even the untrained intelligence an idea of the unity and grandeur of this plan and its relation to the entire physical world can be conveyed. From a biologic point of view the reproductive function is the most important function of the human body, and yet, almost without exception, it is a subject that is not only ignored by parents and instructors of the young, but in the case of the young women of the working classes, nearly every avenue through which they could be reached has its cerberian guardian crying "hands off." "You can only touch

upon those subjects in the rarest instances," it is said; or, "this is not the place for the work of a society having for its aims sanitary and moral prophylaxis."

These objections, however, must not be regarded as insuperable obstacles to necessary hygienic and physiologic teaching. On the contrary they should but serve as a stimulus to a crusade against ignorance and prejudice and as a beacon to light the way to the correct teaching of sexual physiology.

Education must begin with the young. Simultaneously with this education, or when it is under way, the education of parents and teachers must be undertaken. The importance of the matter precludes the possibility of depending upon the education of parents, first, for not only is it a matter of their education, but of combating their prejudices and perverted ideas. Where shall this education be given and by whom? Fundamentally every influence should be brought to bear to secure needful instruction from parents. In addition to the teaching of physiology in the public schools, which is largely perfunctory and without that broad knowledge which tends to make simple and luminous bare physiological facts, and which stops, so far as girls are concerned, with a bare mention of the pelvic organs and the fact of menstruation, but not of their relation to the phenomena of reproduction, there should be added a talk on sexual physiology from an authoritative source. Instruction in physiology is given in the fourth grammar grade and to girls from thirteen to sixteen, just when physiologically the necessity arises for the possession of this knowledge to the end of safeguarding their health and preserving their purity. But the simplest physiological facts are imparted in such a manner that the child is left to puzzle over the meaning of words and to associate a term with the thought that it is something which they are not intended to understand. Duodenum, for example, was used by a teacher in such a way that the term was kept in the mind of a young working girl from her grammar school days to the age of twenty, when, believing it bore some suggestive significance, she asked me what it meant. Likewise instruction as to the anatomy and physiology of the reproductive organs is given in a manner, if given at all, that has no bearing upon the phenomena of life, and either is without significance or suggestive of a wrong and hidden meaning.

This is all unnecessary. Much more fortunate was a patient of mine, who from their infancy and childhood had entire charge of the three orphan daughters of her sister. In describing the shape, size, position and supports of the reproductive organs, their physiological function and relation to reproduction, it was done in so dainty a manner and with such graceful imagery that one of them exclaimed: "Oh, I know, Auntie, just like an oriole's nest." There could be no prettier conception, but it could only be made to appeal to the child more or less familiar with nat-

ural history, a study of which would lead without a false step to the important biologic phenomena of reproduction.

Mothers and teachers who know that young girls under their care are not in ignorance of sexual matters, steadfastly close their eyes to the fact and believe that in ignoring them, all dangers will be averted. As attendance at school is required to the age of fourteen there should then be no trouble in imparting this necessary instruction or preliminary physiological education in the public schools.

But there are many avenues through which young women of the working classes can be reached for more advanced instruction if the age limit required for attendance upon public schools finds them too young. There are many working girls' clubs. For example in New York city the New York Association of Working Girls' Societies has thirty-two distinct branches. The Association of Neighborhood Workers represents fifty settlements that also have such clubs. This makes eighty-two centers; then there are the Girls' Friendly, Manhattan Working Girls' Clubs, and others. Without making an exact statistical estimate, it is safe to say that there are at least two hundred or more such organizations. Churches also have their friendly societies and leagues, where it should be possible to get into touch with the young women of the working classes. The Young Women's Christian Association opens up still other opportunities. Other avenues which suggest themselves to my mind are the large department stores and manufactories, where vast numbers of young women are employed who are especially exposed to untoward influences. Some of the department stores have already adopted measures, which, if followed up, should readily lead to opening the way for the work.

Siegel & Cooper employ a male physician who is on duty from nine to five, and is paid by the firm and they also employ an untrained nurse; Wanamaker has a private physician on call and employs a trained nurse—both places have a mutual benefit association for employees; Altman has a private male physician on call; Simpson & Crawford call one when needed; Macy's is the only firm, to my knowledge, which employs a woman physician.

Women's clubs could do no nobler work than to secure needed teaching for themselves, and in turn assist in the education of those less fortunately placed. In the centers where working women congregate a woman physician should either be employed or be on call, in addition to the male physician, and through her relation to her employers and their employes there should be no difficulty in securing opportunities for necessary instruction. A part of her duty should be to supplement the meagre school education in physiology and add to it necessary instruction in sexual physiology.

This special instruction, so far as it concerns girls and women, by reason of its very nature should devolve upon women physicians. But

when men, after long years of all the privileges of the medical profession, are only just waking up to the need of concerted action in these matters, it is not strange that medical women, whose professional privileges and opportunities are not only of shorter standing but of much less scope, are not yet fully awake to the need of their sex and their duty in relation thereto.

In so far as young women of the working classes are to be reached, outside of their mothers' teaching, instruction can only come from competent medical women, or, when by nature and education, especially qualified the trained nurses employed by corporations like those mentioned.

That this may be effectively done requires a perfect and complete organization of women of the profession, who must be animated by a unity of purpose and action. To insure the success of such a body, not only the moral support, but the authoritative backing of this parent organization will be required. The way will not be easy, and infinite tact, great patience, persistence, wide learning and broad humanity must be brought to the work. It will require all these as embodied in their representative intelligence of this society to overcome the prejudices of those who stand between it and all the organized centers of working women.

Although animated by the noblest motives the professional philanthropists are apt to approach the subject with a certain mawkish sentimentalism. They say it is a very delicate subject, and by its discussion more harm than good is done. "Not until the ideal woman physician arrives can it be done, and how we shall welcome her! But she will have to be ideal," is the sentiment of others.

Even the settlement workers, in so far as I have spoken with them, feel it a very difficult situation, and are disposed to cry, "Hands off!" They regard the safeguarding of those of very tender years as of very great importance (those who are presumably too young to be instructed), but, in the opinion of these workers, nothing can be done, save by warning girls in general terms. They are unable to convince themselves that much more than this can be accomplished with audiences or with small groups of girls.

It is believed that the mothers of the East Side, for example, are less apt to be negligent in the matter of necessary instruction to their daughters in connection with their sexual physiology, than mothers of better circumstances, if I may so distinguish. They are forced to this by reason of their crowded rooms and promiscuous living. Unquestionably the evils arising from a lack of education would be lessened by model tenement houses with facilities for necessary personal privacy.

The whole attitude of those standing in the position of guardians, whether natural or self-imposed, toward instruction in these matters is wrong. As this teaching is not, cannot, or will not be given by parents,

philanthropists and others who have the opportunity, sexual physiology should in a perfectly natural, commonplace manner, form a part of the curriculum of school education or of the lectures furnished by the management of working girls' clubs, or given by the employers of large numbers of young women. This instruction should preferably be by word of mouth, for it is by the silent perusal, even of the most carefully worded leaflet or books, that the undisciplined mind is apt to be led astray. The printed word is often read at first, not always with a knowledge that it is so read, for sensual gratification. Teachers are ignorant of what they teach when it comes to physiology. If they are to take part in giving instruction they should be specially qualified. The tendency of the day toward greater attention in the public schools to the study of natural history, physics and biology will aid in the development of a higher intelligence and conception of life in all its aspects on the part of the teachers, the benefits from which must be reached by the young under their care.

A considerable experience in my early professional life with penal, reformatory and eleemosynary institutions showed me that reformatory measures were of little avail. When health is broken an effort to reform is made, but with its return a life of immorality is renewed. Therefore the greater need for education and prevention.

The lack of education in these matters leads not alone to immoral practices, but is prejudicial, as well, to that perfect health which should be the God-given right of every human being. Because of a lack of knowledge, menstruating girls lay the seeds for lives of wretched invalidism. The ignorant, but pure young woman, marries without knowledge of the dangers which await her, for unfortunately, the code of honor makes right for man that which women dare not do under ban of social ostracism. The result is disastrous in the extreme—a ruined life of wretched invalidism. This may happen whatever the social position. With a practice which has in no sense a venereal aspect, fully one-half of my gynecological classes are of gonorrhœal origin and they are the saddest cases with which I meet.

But while realizing the great necessity of education in sexual physiology for all women it should embrace none of the prurient nor flippant information already too common among all classes, but should be so natural, simple and dignified as to arouse no thought of evil, but to serve as an armor against it.

SECONDARY EPITHELIOMA OF THE AXILLARY NODES WITH INVOLVEMENT OF A LARGE NERVE.*

BY HARVEY G. MUDD, M. D., AND GUTHRIE McCONNELL, M. D., St. Louis.

Cases of carcinoma in which there has been extension or direct involvement of nerve structures are not so numerous as to permit their being passed over unnoticed. The literature on the subject is extremely limited but what there is opens up some interesting points for discussion. It is well known that there are lymph spaces surrounding nerves and also passing along within them but their relation to malignant disease seems to have been but slightly considered.

The following references are taken from a recent article by Ernst who has reviewed the literature and found very little upon the subject.

Thoma believes that the sheaths and coverings of the peripheral nerve filaments not infrequently allow the extension of carcinomatous elements. He cites a case of carcinoma of the lower jaw in which there was an extension of the growth along the inferior maxillary nerve to the posterior foramen. He also mentions a case of involvement of the nerves in the neighborhood of a carcinoma of the uterus.

Klebs reports a case of a papillary carcinoma of the conjunctiva with extension of the tumor cells in the lymph channels of the nerves of the eye muscles.

Pilliet reports a case almost identical with ours. His was a case of recurrent carcinoma of the breast in which there were metastatic nodules in the axilla which surrounded and practically destroyed the median nerve. This structure contained cancer cells in the lymph spaces. During life there was pain and also trophic disturbances.

Ernst reports several cases of nerve involvement. These can be briefly described as follows:

1. Carcinoma of the esophagus in a 38-year-old woman in which esophageal branches of the vagus contained tumor cells.

2. Italian woman, 44. Carcinoma of the uterus. Was removed and returned. During life had considerable pain. Examination showed the presence of cancer cells in the sacral plexus, in both the perineural and endoneural lymph spaces.

3. Man, 60. Recurrent carcinoma of the pancreas. Was accompanied by severe pain. Numerous branches of the inferior gastric plexus were found to contain epithelial cells in both peri and endoneural spaces.

4. Man. Prostatic carcinoma. Tumor cells found in a ganglion.

5. Man, 44. General carcinomatosis, with involvement of the vagus.

6. Woman, 60. Ulcerating carcinoma of the pylorus with involvement of the nerves in the stomach wall.

*Read before the St. Louis Surgical Society, January 17, 1906

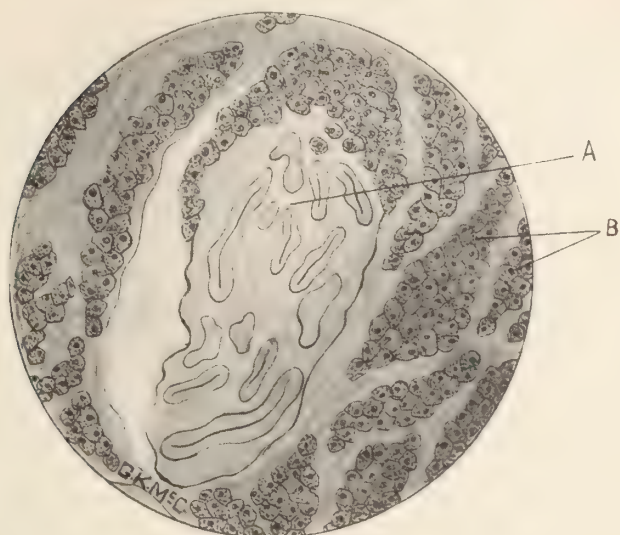


FIG. 1.—A, nerve bundle showing infiltration of carcinoma cells. B, nests of tumor cells.

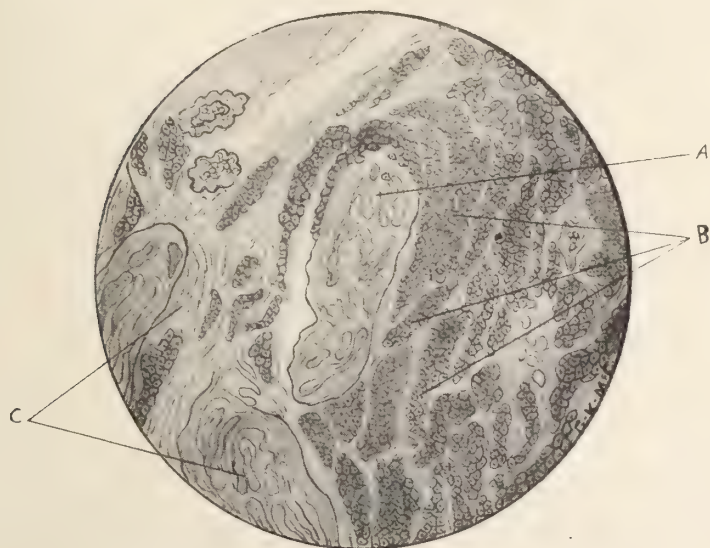


FIG. 2.—A, nerve bundle showing infiltration of carcinoma cells. B, nests of tumor cells. C, uninvolved nerve bundles.

7. Man, 59. Ulcerating carcinoma of the esophagus, with tumor cells in the recurrent laryngeal. The involvement was so great as to cause paralysis.

It might be that in some cases in which there were secondary growths the metastases may have taken place along the lymph spaces of the nerves. This would seem to present a new problem to the surgeons because if removal of the lymph nodes were not sufficient it might be that in some cases excision of the nerves would have to be resorted to.

The case that we have to report is as follows:

E. Q. Female, 70. Married. Family history, negative in regard to tumors of any sort. She has always been well until the present trouble.

About four years ago while scrubbing the floor she ran a splinter into the palmar surface of her left hand at the junction of the first and second fingers. No trouble arose till about three months after the injury, when she began having some pain in her left hand. In the course of another three months (about June, 1902) an ulcer began at the seat of the injury. The hand became very painful and the ulcer extended till a large part of the palm was involved.

For a year and a half she was treated by the x-ray without any apparent benefit, the ulceration slowly spreading. Finally, last March (1905) she went into a hospital and had her hand amputated at the wrist. At that time a large ulcer involving the first and second fingers of the left hand was found. The hand was considerably thickened but the thumb seemed entirely free and outside of the area of infiltration. On the fourth of March the hand was amputated. The operation was an interesting one in that no general anesthetic was used. The skin at the outer side of the arm just above the elbow was infiltrated with a 1-10 per cent cocaine solution and a long incision made through a considerable quantity of fat. The musculo-spiral nerve was found with a good deal of difficulty and a 1 per cent solution of cocaine injected directly into it. The median nerve was found by an incision just in front of the elbow to the inner side of the bicipital fascia and was treated in the same way. The ulnar nerve was difficult to find, being buried under a large amount of fat and connective tissue, and a 1 per cent solution of cocaine was also injected into it. The amputation was then made, first leaving the thumb with a portion of the trapezium in place. The carpal bones were however found to be so much softened that the knife readily cut through them and on that account were removed. The thumb being so poorly supported was taken off. The skin flap which was abundant was then drawn over the bones with three interrupted sutures of silk worm gut. The incision in the upper arm was closed with interrupted sutures of fine silk. The patient made but very little complaint during the operation, so probably suffered but little as she was of a somewhat querulous nature.

She felt perfectly well till September when she began to have pain in

her left axilla at which time she noticed four small nodules. In the course of about a month these nodules broke down and ulcerated, the pain then becoming less. These ulcerated areas finally coalesced and eventually penetrated into the deeper tissues, forming a large sharply defined excavation.

Physical examination showed the patient to be considerably emaciated, and in the left axilla was seen a deep foul smelling ulcer with sharply defined edges. It was slightly oval in shape, being two inches long, one and one-half wide and three-quarters deep. The skin immediately surrounding the opening was smooth and shining. The cavity had irregularly eroded walls covered in many places by greenish and necrotic tissue. At the base of the cavity was a dense mass of grayish white tissue.

At the left wrist was a slight scar, the result of the previous amputation. It showed no general or local thickening nor any other peculiarities. The skin of the forearm appeared perfectly healthy, the muscles however were flabby and atrophic.

At times she has considerable pain in the forearm and it gets cold very readily, and is then followed by pain that extends to the shoulder. Occasionally has severe pain in the bones of the forearm.

She was operated upon on November 27th, 1905, at which time the ulcer with the adjacent tissue was removed. Adjoining this mass were several small but enlarged nodes. Disappearing into the tumor was a large nerve, about the size of a match stick. On careful sectioning it seemed to spread out and disappear into the new growth. Although the relations could not be well made out it seemed probable that the nerve was the median.

Microscopic findings. Portions of tissue were taken from various parts of the neoplasm, hardened in Zenker's and mounted in both celloidin and paraffin. One section included a portion of the skin as well as the edge of the ulcerated area. In it the surface epithelium gradually thickens and send prolongations down into the deeper tissues. Numerous irregular nests of abnormal cells are present and are surrounded by a well marked stroma of adult fibrous connective tissue. The cells vary greatly in size, the nuclei are vesicular, differ in shape and size and many show well marked mitotic figures. In many of the epithelial nests the cells are concentrically arranged and show marked keratin degeneration. Round cell infiltration is well marked. Diagnosis, secondary squamous epithelioma.

A second specimen taken from the base of the ulceration shows similar malignant conditions. In addition there is found a portion of nerve disappearing into the tumor mass.

In a third specimen a very interesting condition was found. The nerve that was found surrounded by the tumor mass has been separated into smaller bundles by neoplastic cells that have penetrated its covering. The

relations of the nerve have been much disturbed as is shown by the various planes through which the bundles have been divided; some longitudinally, others transversely and some obliquely.

One of these bundles has a crescentic shaped mass of tumor cells lying between the perineurium and the nerve itself. Toward the middle of the crescent the cells are seen to be no longer confined but have penetrated between the nerve fibres. In a few places the tumor cells can be discerned lying in the endoneurium between the individual fibres. This mass of cells is separated from an adjoining collection by a very narrow band of fibrous connective tissue. In many of the nerve fibres the myelin sheath is much increased in thickness and is very granular and the axis cylinder in some is much swollen, in which case it has lost its power to take up the stain. In other portions of the nerve bundles can be seen cells that resemble in every way those found in the neoplastic tissue. The invasion in this case has been both peri and endoneural, the first, however, predominating. Various sections of the nerve itself at different levels were examined but no tumor cells could be found. Unfortunately portions of the nerve below the point of operation could not very well be procured.

In this case it would seem quite evident that the pain and ulceration were both due to pressure and to trophic disturbances.

The condition of the skin at the edge of the ulceration was also of interest. The secondary growth took place within the axillary nodes and then extended outward finally involving the skin. Instead of the squamous epithelium undergoing atrophy it has taken on a malignant degeneration. Processes of cells dip down into the subcutaneous tissue, the basement membrane is lost and a picture is given resembling a primary squamous epithelioma with extension. It would appear as if the secondary tumor in its growth had by proximity caused the epithelium of the skin to take on a malignant change.

EDITORIAL COMMENT.

THE NEED OF INDUSTRIAL SCHOOLS FOR THE BLIND.

A recent number of "Charities and the Commons" (February 3, 1906) is devoted to the consideration of a neglected field in the education of the blind. The education of those born blind and those who become blind in earliest childhood has engaged the attention of philanthropists largely to the exclusion of any serious effort toward providing instruction for those who become blind in adult life. Today, practically every state in the Union has its schools for blind children. Although it has been universally recognized since the pioneer work of Howe that there are two distinct problems in the education of the blind—the one purely scholastic, the other industrial—it is, nevertheless, true that there are today 4,500 blind children being educated and only a few men and women over twenty receiving industrial training. The neglect of the industrial aspect must be largely ascribed to the failure of the public to recognize the fact that 75 per cent of the blind in this country are above the usual age limit (20 years) of admission to existing schools. In default of industrial schools a large proportion of this class will inevitably lapse into apathy, mendicancy, or become a charge upon the state.

In 1903 New York and Massachusetts appointed commissions to investigate the conditions and needs of the adult blind. The reports of these bodies recently submitted, are strikingly similar in many respects. It is recommended, first, that the state maintain a register of all the blind, including, among other data, their age and the age when they became blind; second, that the scholastic institutions dealing with blind youths should prepare them more concretely for after life; third, that agencies be devised to train industrially those who become blind after maturity. These investigations have shown that it is not lack of sight but rather the insulation of the blind as members of economic society that should be impressed upon the mind of the community.

The old attitude of the public toward the blind must be changed. It must be neither sentimental nor pathological, but simply sociological. It must be an attitude of sanity and fellowship. "Help the blind to help themselves": such are Helen Keller's words. The man suddenly bereft of sight must be readjusted to his environment. Whether he will experience the blessedness of work which leads to contentment, or by idleness enforced, lapse into black despair, will depend partly upon himself, but more on the inspiration given him from outside. Heretofore his groping hands have supplicated us in vain.

The cry of these people is not for alms but for work. There is not one who does not dread dependence upon the family or the state. The knowledge of a trade whereby he may earn his own livelihood is the boon of all others that he craves at the hands of his fellows. Shall we continue to turn a deaf ear to his appeal?

Granted that simple humanity demands industrial schools for the blind, it must also be conceded that they are needed on the ground of economy

to the state. The cost of training an individual to such proficiency in a trade that he may become largely if not altogether self-supporting—say \$300—is about the same as the cost of maintaining him a single year in a poor house. If, without training, a man of thirty becomes a charge upon the state and lives to the age of sixty, his maintenance will have cost the state thirty times three hundred dollars. When our state legislatures are appealed to it is probable that this aspect of the question will have the greater influence in securing appropriations.

UNDRAWN POULTRY A MENACE TO HEALTH.

In a recent number of *Dietetic and Hygienic Gazette* attention was called to the vicious custom of marketing undrawn poultry, and offering for sale, and selling, undrawn poultry which had been in cold storage for weeks or months. This condition of affairs can be easily remedied if the profession will interest themselves in the matter to the extent of using their personal influence to compel all dealers to dress all fowl and small animals, like rabbits, immediately after being killed, and remove all entrails. The same precaution should be observed with fresh fish, as ptomaines develop quite as rapidly in fish and are quite as deadly as ptomaines in fowl.

Physicians in the smaller towns and cities can do splendid work along this line by calling attention to the great dangers from undrawn poultry, and every physician who acts as a health officer can compel dealers to draw poultry, or if existing laws are insufficient to cover the case, secure the passage of an ordinance covering the case.

The last legislature of Minnesota passed a law providing for drawing poultry. It is found in chapter 96, penal code, section 7½. It says:

"Every person who shall offer or expose for sale at retail, for human food, at any public market, store, shop or house, or in or about any street or other public place, any domestic or wild fowls, or any slaughtered rabbits, squirrels or other small animals, wild or tame, unless the entrails, crops and other offensive parts are properly drawn and removed, shall be guilty of a misdemeanor."

It makes no reference to game birds, as under the game laws they cannot be sold. This law also omits fish.

This law for some unknown reason fails to reach the case of cold storage, as it expressly says "every person who shall offer or expose for sale *at retail*," etc. This permits the commission men and cold storage people to keep the fowl with entrails intact as long as they like, provided the retailer removes the entrails as soon as he offers them for sale. The law should read that all fowl must be drawn and thoroughly cleansed as soon as killed. In no other way can the vicious practice of cold storage houses be stopped.

Ptomaine poisoning from the ingestion of tainted food causes frequent localized epidemics of diarrhœa, and where diarrhœa does not quickly supervene and assist in carrying off the poison, death can and does frequently occur before the true cause is ascertained and effective measures taken to eliminate and counteract the poison.

MEDICAL AND SURGICAL PROGRESS.

INTERNAL MEDICINE.

IN CHARGE OF

JESSE S. MYER, M. D.

THE RADICAL REMOVAL OF CANCER OF THE STOMACH.—The Mayos (*New York State Jl. of Med.* Jan. 1906) make the statement that there is no truthfully recorded case of a cancer of the stomach cured by medical means, but that these cases are nevertheless treated by medical men and necessarily result in 100 per cent mortality. Cancer of the stomach is the most frequent form found in the human body, at least thirty per cent of the total, a tremendous sacrifice of human life almost without an effort at cure. They blame this state of affairs upon the past high mortality of radical excision and the difficulty of early diagnosis. They maintain, however, that the improved technique of the past few years has lowered this mortality to less than 10 per cent. They report 81 gastric resections with a mortality of 14.5 per cent. Thirty-four of these were operated upon within the last thirty months with a mortality of eight per cent. Of the total number, five failed to live six months after operation, thirty-eight cases lived six months to a year, twenty-one from one to two years, ten from two to three years, four from three to four years, and one is alive and well after four years and ten months. They consider the clinical history and symptoms of the greatest value in early diagnosis. At best, however, all known means of diagnosis merely give rise to a suspicion, and if we cannot disprove it, exploratory operation is called for.

Deaver, in the discussion of this paper, urges upon the internist the importance of familiarizing himself with the pathology of the living being in the operating room. He, too, lays greatest stress upon the symptomatology and physical examination, and less upon laboratory methods, for, as he says, hydrochloric acid may be present in cancer of the stomach and lactic acid present in diseases other than cancer. In a choice between symptoms and physical signs he relies more upon the former than upon the results of the physical examination. There have been so many cases in which a palpable tumor disappeared after stomach rest had been obtained by gastroenterostomy, that he has found it well nigh impossible to diagnose unerringly a tumor as malignant until either the constitutional symptoms were well advanced or the abdomen was opened. The character of the vomitus and progressive emaciation are to be most relied upon when the case is at all advanced. Emaciation, however, is not to be accepted merely on the patient's word. The statistics from the clinics of Krœnlein and Mikulicz show that patients who have undergone an exploratory laparotomy in which no further operative treatment was possible, actually lived longer than did those whose disease was so far advanced as to make even an exploration unjustifiable. For this and

other reasons, Deaver is a firm believer in exploratory laparotomies where justifiable indications are present. He believes that there is too much surgery being done upon the stomach at present. He considers indigestion as belonging first to the internist and if through a rational treatment persistent symptoms are not relieved, surgical investigation to discover and relieve the physical conditions is not only justifiable but indicated. He believes that every case of gastric indigestion not cured by rational treatment will be found to be due to lesions of the gall bladder, duodenum, pancreas or the stomach itself.

[The above remarks by some of our most competent surgeons show the trend of modern gastric surgery. It is seldom, however, that we hear an internist expressing such unqualified opinions as these with reference to diseases of the stomach. I firmly believe, however, that while they go too far in maintaining that every case of persistent indigestion should be subjected to an exploratory operation if it does not yield to rational medical treatment, that we internists are often guilty of treating gastric symptoms as primary stomach troubles, when in fact they are due to causes in other organs, which causes may be removed only through surgical interference. I think, however, that the chief danger in the acceptance of this view is that the surgeon will be too prone to assume that a rational treatment of the case has been carried out merely upon the statement of the physician who brings the case to him. I have observed this time and again when I felt that a *rational treatment* had not been carried out. A rational treatment of the diseases of the gastrointestinal tract presupposes first of all a profound knowledge of the physiology of the gastrointestinal tract, a large knowledge of dietetics and a little knowledge, at least, of materia medica. If surgeons who have had a vast experience in the physical examination of abdominal cases and the opportunity to corroborate their findings through laparotomy, would make it a rule to place their stomach cases under the careful observation of a careful observer for a period of at least two weeks before subjecting them to the knife, I believe we will have attained the desired end in the surgical treatment of diseases of the stomach. In this way and only in this way can the abuse of gastric surgery be prevented. This rule should be broken only when the symptoms are so definite as to leave no doubt as to the diagnosis, or when the surgeon feels *fully assured* that the patient in question has received *prolonged rational treatment*.—Ed.]

A NEW METHOD OF TESTING THE FUNCTIONS OF THE DIGESTIVE APPARATUS.—Einhorn (*Medical Record*, Feb. 10, 1906) conceived the plan of attaching solid food stuffs to porcelain beads and then to have them pass through the stomach and bowel in order to see what remained attached to the tube. It is self evident that a substance which is entirely digestible will disappear, whereas indigestible substances will be found in the feces attached to the beads. Through this means he was able to determine how the various food stuffs behaved in the stomach and bowel of apparently healthy persons. To test the work of the stomach alone, the beads, with the food substances attached, were tied to a silk thread 50 cm. long. The beads were swallowed and exposed to the action of the gastric juice four to six hours and then withdrawn. At-

tached to the beads were catgut and meat, raw tendon, raw chicken skin, raw potato, etc. These experiments in healthy people show that both catgut and fish bones are digested in the stomach, whereas boiled or raw meat, raw chicken skin, and raw as well as boiled potatoes do not disappear altogether in this organ. Raw muscle fibre and chicken skin disappear in the intestines. Tendon, however, remains undigested. Raw potatoes sometimes disappear entirely, sometimes pass through the intestines unchanged. He also carried out a series of experiments testing the gastric functions according to the methods described by Ogata, Schmidt, Sahli (These tests were referred to in the February number of the INTERSTATE and need not be repeated here).

THE DIAGNOSIS OF STONES IN THE COMMON DUCT.—Ehrét (*Muench. Med. Wochen.* Jan. 16, 1906).—For an absolute diagnosis of stones in the common duct, it is important first of all to have made an absolute diagnosis of cholelithiasis, and secondly to have noted that the stool of the patient in question has at least contained bile pigments from time to time. This last is not absolutely necessary, for cases have been noted in which the feces have been entirely free from bile pigments for a very long period of time and choledochus stones have been demonstrated. The temperature curve in these cases is quite characteristic. The temperature is normal for a long period of time with paroxysms of fever developing at periods varying from once a week to once in twelve weeks. The temperature frequently rises 41° C. and through a crisis returns in a few days to the normal. Together with this periodical temperature there is regularly an icterus varying from a very mild to a very severe type. Even after the temperature returns to the normal the icterus will continue in a very mild degree for a very long period of time. With the elevation of temperature this mild degree of icterus again becomes very severe. Unlike gall-stone disease in general, there is an absence of pain and tenderness, and this is quite as characteristic as the symptoms just mentioned. The author maintains, therefore, that cases presenting paroxysmal elevations of temperature, regularly associated with icterus, in the absence of pain, unquestionably have stones in the common duct.

GANGRENE OF THE GALL BLADDER; RUPTURE OF THE COMMON BILE DUCT WITH A NEW SIGN.—Ransohoff (*Jl. Am. Med. Assn.* Feb. 10, 1906) recites the history of two cases of gangrene of the gall bladder and rupture of the common duct and points out a very interesting symptom which to his knowledge has never been observed before. This is the localized jaundice about the umbilicus, observed in one of these cases. Although a single case does not warrant the assumption that something entirely new has been observed, the author believes that further observation will give to this localized jaundice some value as a sign of free bile in the peritoneal cavity. In the case presented this feature gained in interest as the staining of the subperitoneal fat with bile was observed through the incision in the abdominal wall. It makes itself manifest in the integument of the navel because this part is thinner than the rest of the abdominal wall. It is possible too, that by reason of the anatomical relations of the round ligament of the liver to the transverse fissure that

there is a retrograde flow of bile through the lymphatics toward the navel just as the caput Medusæ is produced in cirrhosis.

OBSERVATIONS ON THE TREATMENT OF ACUTE PERITYPHLITIS.—Gro-scher (*Muenschner Med. Woch.* Jan. 23) maintains that it is not possible through a clinical examination to make a definite anatomical diagnosis as to the condition of the appendix and the peritoneum about it, and recommends in every serious case, the performance of immediate operation on the first, or at the latest, the second day. He believes that the early operation presents fewer dangers than are met with even after a delay of three days. Even the lightest cases should be under most careful observation with all preparations made to operate if the recovery is delayed, or for any reason the condition becomes worse. One unfavorable symptom should carry more weight than ten favorable ones. In all cases food by the mouth should be stopped at once, purgatives by all means avoided, and opium given only after definite conclusions have been reached as to the condition of the patient.

MOSQUITO WORK IN RELATION TO YELLOW FEVER ON THE ISTHMUS OF PANAMA.—Gorgas (*Jl. Am. Med. Assn.*, Feb. 3, 1906) points out the great mortality on the Isthmus of Panama during the French occupation and compares these figures with the ones that have been attained during American occupation of the canal zone. The results of his work have been the apparent elimination of yellow fever from the zone. In June they had sixty-seven cases, in July forty cases, in August twenty-seven cases, in September seven cases, in October three cases and none in November and in December. Of course it is too early to say that yellow fever has been entirely eradicated from the Isthmus. This cannot be affirmed with any certainty until the full life of the female stegomyia has been passed. He has seen them live in captivity for 150 days and believes therefore that at least two months will be necessary to determine whether or not yellow fever has been entirely eliminated from the Isthmus.

PATHOLOGY AND BACTERIOLOGY

IN CHARGE OF

CARL FISCH, M. D.

ABOUT THE RECOVERY OF TOXIN FROM ITS ANTITOXIN COMPOUND. J. Morgenroth (*Berl. Klin. Woch.* 1905, No. 50.)—In view of the proclivity, at this time, to call Ehrlich's theory a chimera, and to replace it by so far altogether hazy and uncertain analogies with certain colloidal reactions, Morgenroth's paper adds a point of immense value to the enormous material accumulated, only and only understandable after Ehrlich's ideas. The more or less stereochemic nature of the latter has been attacked in many directions, foremost among them the absence of a proof that from the reaction products the composing substances, antitoxin and toxin for instance, can be recovered. The author has pub-

lished experiments that most clearly demonstrate this possibility and at the same time demonstrate that so far the limit of the methods used for this problem was the limitation for the possibility of success. It will be impossible to give details of his experiments that were made with snake-venom and lecithin. His conclusions are these:

By watery HCl at a moderate temperature cobra-hemolysin can be changed into a modification that does not possess any more the capacity to bind the specific antitoxin produced by the injection with the genuine toxin. It has, however, still the quality to combine with lecithin to a lecithid. By neutralization, the modification returns to the original condition. This modification obtains also when the toxin is already combined with antitoxin. Consequently, on the addition of HCL, a splitting of the toxin-antitoxin combination is seen, that otherwise is irreversible. In such solutions, after neutralization, the toxin is present in active form at the side of antitoxin. In this way, even after a long time, it is possible to recover from neutralized or hyperneutralized toxin-antitoxin mixtures the toxin quantitatively, and the same the antitoxin. The quantitative recovery of the original toxin is easily obtained, utilizing the resistance to heat of the toxin modification (after Keyes and Sachs), thus by heating the antitoxin-toxin mixture destroying the split off antitoxin. After the neutralization, the total quantity of toxin with its specific qualities can be demonstrated by experiment.

A complete reversibility, therefore; a final denegation of the attempts to explain immunity reactions on a purely physico-chemical basis. In view of the attempts of making them simply colloidal phenomena, I may be allowed to quote Morgenroth's words.

"It would in my opinion be a great disadvantage for the exploration of immunity, if Ehrlich's principle, basing on analogy with stereo-chemistry, theoretically so well based, would be left behind for some, at the present, at least, purely formal analogies, that some phenomena show with phenomena known in the colloid chemistry, just now in statu nasendi. The stereo-chemic interpretation fully corresponds to the peculiar reaction of the immune substances, approaches us to the problem of the specificity of the immune bodies and offers to us, as shown by the production of the cobra-lethid by Keyes, at least the principles of the chemical constitution of the immune substances.

EXPERIMENTAL CIRRHOSIS OF THE LIVER.—R. M. Pearce (*The Jl. of Exp. Medic.* Vol. 8, No. 1).—The interesting results of Pearce are summarized in the following words: The reparative process, which follows the widespread necrosis of the dog's liver caused by the injection of hæmagglutinative serum constitutes a chronic interstitial hepatitis of definite and constant character. This is not only a new type of experimental hepatic lesion, but is more definitely a cirrhosis, than in any other experimental lesion hitherto described. It is of importance in explaining the histogenesis of cirrhosis, and incidentally various repair processes in the liver; but it does not aid in the elucidation of the etiology of cirrhosis in man, nor does it explain the peculiar arrangement of the new connective tissue in any form of human cirrhosis, except, possibly, that associated with chronic passive congestion. It definitely demon-

strates, however, that cirrhosis may follow extensive primary destructive lesions, a view not yet fully accepted, and supports the contention of Kretz that cirrhosis is essentially a reparative process.

TODAY'S STATUS IN THE FIGHT AGAINST TUBERCULOSIS.—R. Koch (*Deutsche Med. Woch.* 1906. No. 3).—It is not the reviewer's intention to abstract Koch's publication. Any abstract would do injustice to it in its lapidary structure and architectonic symmetry. The words of Koch incorporate the essential results that the endless attempts to compass tuberculous infection so far have yielded. In them there is combined a likewise authoritative estimation of the work done in pathologic, clinical and therapeutic, as well as in preventive studies. If we say that Koch's words are based on his assertion of the essential and most important factor, the human tubercle bacilli, we must not forget that the last year has brought final settlement about the correctness of it, in spite of the half way condescendence to the opposite opinion. Today, the human bacillus is the only one that positively must be in the first place attacked, not the bovine, or we ought to take the same preventive procedures against the organisms of actinomycosis or other chronic infectious diseases. The ways in which this is to be done are outlined very plainly in the publication and ought to be seriously considered by everyone dealing with the problem of diminution of tuberculous disease. That Koch has allowed certain merit to the sanitarium movement, is a connivance to the modern sentimental trend of mind. He clearly suggests that the attack must begin much earlier, before sanitarium treatment appears indicated at the present time. Only by preventing the rising of an open tuberculosis a final result will be obtained, and this is the gist of Koch's work and endeavor.

CYTOTOXIC SERUM PRODUCED BY THE INJECTION OF NUCLEO-ALBUMENS.—S. P. Beebe (*The Jr. of Exp. Med.* Vol. 7, No. 6).—The specificity of antiserum produced by the introduction of body-cells into an individual of another species has come into disrepute by investigations that showed that such sera have mostly not more effect on the organ by the injection of cells of which they were produced, than on other organs. The work of Pearce, especially, has done a great deal to prevent further study of the problem, although, *a priori*, it seems to be of specially great importance for many questions. In experimenting in this direction, the mistake must have been that a specifically functioning cell must in toto produce antibodies of specific character. That this is a mistake has been known for a long time; we have known that antispermatozoic serum is not only spermatolytic, but also hemolytic, agglutinating and precipitating, and the same obtain for all the other specific immunity-reactions. The mistake was made by assuming not only the biologic, but also the total chemical and physical difference of a specific cell from cells of another specificity. It was forgotten that the cell is not an independent element, but only an integral part or portion of the whole; that its life must be based on the same principles on which that of the whole is based. In other words, the substratum making possible the life of a specific cell must be the same as that of the whole organism:

From this it results that every cell in so-called immunity-reactions must to a degree react in an identical way; according to the degree of complexity of differentiation the degree of reaction may differ. But the basis of the life of every cell must show itself by such a reaction. It may be overshadowed by the reaction of an overspecialized function of its substance, but it must be demonstrable. And this is so, in reality. So far, the results, in obtaining objective proof for this truth, have been hampered by many experimental difficulties. Beebe has attacked the question in starting from the at least morphologically most probable possibility, that the functional differences of various forms of cells are inherent not in the cell as such, but in those components called nucleoproteids. The thought, that since we believe that nuclei are the dominating factors in cell function and life, and that to a great excess they always contain more nucleoproteids than other constituent parts, lead to the question whether the difference in function would lead to a difference in constitution and, therefore, to a difference in immunity-reactions. So from liver, kidney and pancreas the nucleoproteids were isolated and utilized for injection into animals. The sera thus produced were found specific in action on those tissues, from the nucleo-proteid of which immune substances were produced by the injections. For nephrotoxin, an absolute specificity in this way could be demonstrated; in a less conspicuous manner for hepatotoxin and pancreatotoxin. Beebe's investigations have brought us close to an insight of the complexity of the processes obtaining in immunity reactions. They have on the other hand shown the wisdom of Ehrlich and his followers in limiting their researches to single phases that could be controlled. They call a serum hemolytic only, while they well know that many other just as specific qualities are contained in it.

INVESTIGATIONS ABOUT FRAMBOESIA TROPICA (Yaws).—Aldo Castellani (*British Med. Jour.* 1905, Nov. 18. *Deutsch. Med. Woch.* 1906. No. 4).—Castellani has found great numbers of a spirochæte in eleven out of fourteen cases of yaws, that in all respects highly resembles the form discovered by Schaudinn in syphilis. They are present in the primary lesions as well as in the secondary skin-manifestations. In the author's opinion the organism cannot be differentiated from the spirochæte pallida of Schaudinn, and, since he believes that Framboesia is different from syphilis, he asserts that the yaws spirochæte is biologically different from Schaudinn's. He calls it spirochæte pertenuis or pallidula. The observation is of exceeding interest and importance, if we remember that the old discussion, whether yaws is identical with syphilis, only a tropical modification of it, or whether it has no relation to it, has not yet been settled. As to the clinical appearance, all of the syphilitic phenomena, down to tertiary lesions are present. The way of infection and the distribution of the lesions is nearly identical. Histologically the latter, it must be said, vary greatly from those of syphilis. In spite of this, the clinical relationship is so near that the thought of a close etiologial relationship, too, has never disappeared. In the findings of a characteristic organism in yaws, that here is found just as exclusively as Schaudinn's spirochæte in syphilis, and the apparent close resemblance of both organisms, are two points that necessarily form a very stringent, although circumstantial evidence for their etiologic role.

EXPERIMENTS ON THE INOCULATION OF MONKEYS WITH SYPHILIS.—A. Neisser. (*Deutsch. Med. Woch.* 1906, No. 2 and 3).—Neisser's work, carried on last year in Batavia, is the beginning of an experimental period of study into the nature of syphilis, made possible by Metchnikoff's and Roux's and Neisser's own preliminary work about two years ago. The results already obtained are very important; their importance lies, however, mainly in the suggestiveness with which they point to the further course of investigation to be taken. They can be detailed here only in great shortness: The period of incubation in monkeys lasts mostly three to five weeks. For inoculation, deep scarifications were made, into which the material was rubbed. Greater certainty of results obtained for material from florid and fresh stages of the disease. Primary glands, condylomata, mucous patches and papules served best. In one case infection was obtained by material from a tertian lesion. Inoculation with blood or serum did not succeed. Of internal organs the spleen, bone-marrow, lymphatic glands and testicles caused infection; negative results followed the use of the spinal cord, ovaries, liver, lung, kidney, suprarenals and muscles. It was impossible to demonstrate different degrees of virulence. It seemed in some cases that by the continued passage through a series of monkeys the virulence was rather increased. Higher monkeys are more susceptible than the lower ones; in the latter, infection is only possible by way of the genitalia or the eyebrows. In the higher monkeys, the general condition was greatly interfered with; primary swellings of lymphatics were very conspicuous; general papulous eruptions were seen in a number of gibbons. Localized eruptions and local returns were frequently observed.

It is a very interesting fact that the author never succeeded in causing infection by subcutaneous inoculation. It seems that a healthy organism destroys the virus in the subcutaneous connective tissue. Neisser, however, has been led to believe that it will be possible to increase the production of antibodies in an infected organism by subcutaneous injections of the virus. In view of the skin immunity, he assumes that immunity may exist against the own parasites, but not against those of other individuals. A general rule for the time in which immunity is established cannot be given. The time in which the virus is generally disseminated over the organism was found to be varying, but not longer than fifty-four days; the experimental data were obtained by inoculation of the internal organs, as above mentioned. It is very important that the administration of mercury did not influence either the development of the primary effects nor the generalization of the virus. As to immunization, Neisser calls attention to the fact that the way of causing attenuation of the virus by passage through lower monkeys does not appear very hopeful, as he has shown that even in them generalization occurs. It must not be forgotten, however, that the organs of lower monkeys cause infection much less frequently than those of anthropoids. Only the testicle here forms an exception and seems to retain the virus even more tenaciously than the lymphatic glands. Neisser's search for spirochæte pallida was not always successful; he himself admits, however, that he did not give much attention to it on account of lack of time, and he pronounces the etiologic quality of the spirochæte as highly probable.

DIAGNOSIS.

IN CHARGE OF

A. E. TAUSSIG, M. D.

THE DIFFERENTIAL DIAGNOSIS OF HAY FEVER ASTHMA.—A. Wolff-Eisner (*Deutsch med. Wochenschr.* 1906, No. 4).—Asthma due to hay fever can usually be differentiated from other forms of asthma by means of the anamnesis. Hay fever patients are usually attacked by their disease at a certain definite date, corresponding to the flowering of rye and other grasses in their locality. The hay fever ceases as soon as the period of flowering is over and does not recur until the following year. The differential diagnosis is often of great importance, not only as regards the local and general treatment, but especially as regards sending such patients away. Localities that would be particularly suitable for patients with bronchial asthma might be the worst possible for those with hay fever, and the reverse. In cases in which the anamnesis and the physical examination do not permit a definite diagnosis, the writer advises the following procedure: Pollen of rye, grasses, corn, etc. (in this country especially rag-weed) are triturated with physiologic saline solution, centrifugated and the clear liquid preserved for future use. A few drops instilled into the eye of an individual not subject to hay fever produces no effect. If the patient, however, be a hay fever subject, a typical conjunctival injection with swelling and much discomfort promptly results. There may even occur a coryza with sneezing and asthmatic attacks. All of these untoward symptoms can be cut short by the subsequent instillation or insufflation of pollantin. In this manner a definite diagnosis is always rendered possible. Dunbar has advocated a similar use of his "pollen-toxin." The latter is an extract of pollen grains, purified by precipitation with ammonium sulphate. According to the writer, this method of preparing the toxin greatly diminishes its toxicity and leads to untrustworthy results. He states that only extracts of fresh pollen grains with physiologic salt solution should be used.

PECULIAR CELLS FOUND IN THE SPINAL FLUID IN A CASE OF ACUTE POLIOMYELITIS.—Ellermann (*Hospitaltid*, 1905, No. 47).—The microscopic examination of the fluid obtained by lumbar puncture is growing in importance in the diagnosis of all sorts of lesions of the central nervous system. In a case of acute poliomyelitis, the writer found in the centrifugated sediment of the spinal fluid on two occasions peculiar cells having a diameter of 15-24 micra, showing amœboid motion and unquestionably not leucocytes. He is inclined to consider them protozoa and believes the finding may have diagnostic significance.

A NEW METHOD OF ISOLATING TYPHOID BACILLI FROM THE BLOOD.—H. Conradi (*Deutsch. Med. Wochenschr.*, 1906, No. 2).—Probably the earliest certain sign of typhoid fever is the presence of typhoid bacilli in the blood. The methods hitherto used for making blood cultures in this condition have suffered from the disadvantage that blood serum

kills off the typhoid bacilli very quickly. Accordingly it has been found necessary to withdraw by means of venesection 10 c. cm. or more of blood which must at once be diluted with many times its volume of bouillon or agar in order to diminish the antiseptic action of the serum. Recent bacteriologic findings have however shown that the unclotted blood has no such bacteriocidal power, the latter evidently being set free as the result of the clotting of the blood. Conradi has accordingly attempted to obviate the main difficulty in the making of blood cultures by preventing the coagulation of the blood withdrawn for examination. Two substances that have strong anti-coagulative power are bile and peptone. The following culture medium at once prevents clotting, forms a good soil for the growth of typhoid bacilli and hinders the growth of adventitious micro-organisms:

In 90 ccm. of fresh ox-gall, dissolve 10 g. peptone, add 100 per cent glycerin and sterilize two hours in steam. The unfiltered clear fluid is poured into sterile test-tubes with well fitting rubber stoppers, 2 to 3 ccm. being placed in each. Before being used these tubes are once more sterilized for half an hour. Sterile capillary pipettes are also kept in readiness. When called to the patient, it is necessary to bring only one of the culture tubes, one of the pipettes and a blood lancet. The lobe of the patient's ear is carefully made sterile by means of soap and water and ether. A little of the culture medium is drawn up into the pipette, a fairly deep puncture made into the ear, a drop of blood sucked into the pipette where it at once mingles with the bile. The mixture is then blown into the culture tube and the procedure repeated as long as blood flows. It is usually possible to obtain one or two centimeters of blood from a single puncture. The quantities of blood and culture medium should bear the proportion of 1 to 3. The tube is then placed in the incubator and after 24 or 48 hours examined for the presence of typhoid bacilli in the usual manner.

By this method the writer has found in twenty-eight cases typhoid bacilli twenty-two times and paratyphoid bacilli six times. Negative results were obtained in about the same number of cases. The method as above described is thus unquestionably inferior to the methods hitherto in use and is advocated only as a makeshift in private practice where a venesection is impossible. A procedure which combines all the advantages of both methods consists in sowing 10 to 20 ccm. of blood, obtained by venesection, into a flask containing a sufficient amount of the above described bile culture medium.

THERAPEUTICS.

IN CHARGE OF

WALTER BAUMGARTEN, M. D.

THE DIETETIC TREATMENT OF ULCER OF THE STOMACH.—Senator (*Deutsch. med. Wochensch.*, Jan. 18, 1906).—The insufficiency, from the standpoint of nutrition, of the usual Leube-Ziemssen diet in ulcer of the

stomach has given rise to experiments in diet which are less likely to produce, or at any rate will not foster the anemia and loss of weight which accompany many cases. Lenhartz, followed by Wirsing and Minkowski, suggested a diet which provided frequently administered small quantities of nutritious food, particularly rich in proteid which is capable of combining with the usually excessive hydrochloric acid, and thereby neutralizing its irritating effect upon the ulcer. It consists at first, of eggs in gradually increasing number, to which, in time, is added milk, then sugar, and finally scraped beef. Lenhartz begins with this semi-solid diet, without preliminary complete rest (starvation), rectal feeding or liquid diet. Senator thinks that a means can be found between these two extremes (the Leube-Ziemssen and the Lenhartz diets). He formulates the requisites of a diet in ulcer of the stomach under four headings 1. The food should not be bulky or heavy. 2. It should not act as an irritant, and, above all, not cause hemorrhage. 3. It should counteract the usual hyperacidity. 4. It should be easily digestible and yet be sufficiently nutritious. A diet meeting these requirements he thinks may be constructed of three substance as a basis, namely, gelatine, fat and sugar. Gelatine is not only a partial substitute for proteid, but may act locally upon the surface of the ulcer as a styptic. In addition to their nutritive value, both fat and sugar reduce the hypersecretion of hydrochloric acid and the fat acts as a protective and sedative to the ulcer. In early cases and after hemorrhage, Senator administers a dilute decoction of gelatine every one to two hours in dessertspoonful doses, more frequently in urgent cases. In addition fresh butter and cream should be given in small doses as such, so that in the first twenty-four hours 30 grams of butter and at least $\frac{1}{4}$ litre of cream are taken. A diet of this quantity will contain 900 to 1,000 calories—a great many more than either the Leube-Ziemssen or the Lenhartz diet affords in the early stages of the treatment. If no hemorrhage occurs after the beginning of this treatment, the quantity of food may be gradually increased, milk may be added to the diet, then scrambled eggs, etc.: while the gelatine may soon be dispensed with. Scraped beef may be used earlier than in any other diet. Senator emphasizes that in his experience this diet has been curative and at the same time afforded adequate nutrition.

PREPARATION OF A SERUM FOR THE TREATMENT OF EXOPHTHALMIC GOITRE.—S. P. Beebe (*Jl. Am. Med. Assn.*, Feb. 17, 1906).

THE TREATMENT OF EXOPHTHALMIC GOITRE BY A SPECIFIC SERUM.—Rogers (*Jl. Am. Med. Assn.*, Feb 17, 1906).—Beebe, at Rogers' suggestion, has produced an antiserum for exophthalmic goitre by isolating the nucleoproteids and globulins (thyreoglobulin) from the thyroid in cases of exophthalmic goitre, and injecting these in small and repeated doses into rabbits until at the end of five or six weeks an efficient serum was obtained. The isolated proteids were employed because it was found that the whole gland was not necessary. The nucleoproteids were used for the purpose of producing some cytolytic effect, the globulins for the production of antitoxic properties in the serum. The rabbits were given injections intraperitoneally, of the mixed proteids at intervals of five days and bled from the carotid on the eighth day after the last injection.

Four antisera were prepared, one from the freshly precipitated proteids, one from the dried proteids when four months old, one when the proteids were five months old, and one from the normal human thyroid. The first serum proved to be the best; the last (normal thyroid) was wholly without effect. Rogers thinks that the decreasing effectiveness of the first three sera for producing permanent results is due to a deterioration of the cytolytic element, that is of the nucleoproteids, which is similar to the experience with bactericidal sera. In the second and third sera the purely antitoxic properties predominated.

The effective sera were used in ten cases of exophthalmic goitre, of which three were permanently cured with the disappearance of all symptoms of the exophthalmus and of the goitre; three were rescued from a critical condition and were approaching a recovery, and four were more or less improved. The serum produced no effect until the end of twenty-four hours when the subjective symptoms began to improve. The doses used were 5, 10 and 15 minims of the strongest serum, injected subcutaneously every other day. The weaker sera were used in larger quantities. On the fourth or fifth day a severe erysipelatous erythema developed about the points of injection, and great rapidity and irregularity of the heart. The permanency of the cure seems to be in proportion of the severity of the delayed reaction.

SURGERY.

IN CHARGE OF

WILLARD BARTLETT, M. D.

ON PRESERVATION OF THE NERVE SUPPLY TO THE BROW, IN THE OPERATIVE APPROACH TO THE GASSERIAN GANGLION.—Harvey Cushing (*Annals of Surgery*, January, 1906).—The proposition embodied in this article supplements the author's already known technique, which has simplified what was formerly considered the most formidable of surgical operations. Dr. Cushing has not been content with lessening the dangers attending upon this procedure, but now advises refinement in the technique, which is intended to improve our cosmetic results. In five of his cases, he found that it is possible to prevent cutting the branch of the facial nerve in question, by simply making the anterior limb of his well-known incision a little shorter than was formerly done. At the same time, this leaves less of a scar outside the hair line, and does not seriously embarrass the operator, as far as lessening the size of his field is concerned.

CONCERNING THE BILIARY PASSAGES.—Hartmann (*Bulletin et Mem. de la Soc. de Chir. de Paris*, January 16, 1906).—This well-known surgeon calls attention to the correct explanation of why it is that a stone in the common duct leads to contraction of the gall bladder, while a new growth compressing that duct causes the dilation of the bladder. The key to the situation leads to the fact that inflammatory changes in the wall of the gall bladder, leading to sclerosis, are a common accompaniment

of stone obstruction, whereas they are usually not present when a tumor obstructs the duct. It is usually an inflammatory change in the wall of the gall bladder which leads to the formation of the stone within the same, and this usually slips down into the duct and obstructs at some later period. Of course, there may be exceptional cases in which the two diseases go hand in hand. On the other hand a stone situated in the cystic duct usually leads to an immense dilation of the gall bladder. The pressure exerted overcoming any tendency to a sclerotic change in the wall of this viscus.

COMPLETE SUTURE, WITHOUT DRAINAGE, IN EARLY OPERATIONS FOR APPENDICITIS.—Borelius (*Zent. fuer Chir.*, No. 4, 1906).—In very many cases the abdomen can be just as well closed without drainage as not. This is more true the earlier one operates because at an early period the appendix is usually not perforated, and there is little or no infectious matter free in the peritoneal cavity. It does not matter if there is fibrin on the peritoneum, nor, indeed, does a serous exudate alone demand drainage. In sixteen out of forty-three early acute cases, the author closed the abdomen completely. They all healed perfectly and left the clinic on the seventeenth day. The average time that patients treated by drainage have remained in the hospital is thirty-eight days, consequently, one sees what gain is expressed in the author's proposition. He looks for the appendix and tries to remove it in absolutely every instance.

THE MANAGEMENT OF HOSPITALS.—Ochsner (*Lancet-Clinic*, January 27, 1906).—When a noted surgeon has devoted the amount of attention to hospitals which Dr. Ochsner is known to have done, then an article on this subject from his pen can hardly fail to attract attention and interest. He handles without gloves, the problems presented and makes many statements which cannot fail to interest those who have given little time to the consideration of this matter. He says that a large hospital can be well built for about one thousand dollars per bed, although some, which do no better work, have cost ten times as much. It costs twice as much to run one hospital as it does another, without increasing, at all, the efficiency of the former. The same business skill which is required to make a factory self supporting, should be given to the management of a large hospital, although this is rarely the case. Our hospitals should be so managed as to preserve the health and the lives of those who are of the greatest value to the community. The staff should not be chosen on account of political or church influence, nor should a man be placed on the staff of any hospital who will not give his sole attention to that one institution.

Women's Auxiliary Boards are usually a nuisance and interfere with the workings of the hospital machinery. Dr. Ochsner's "Diagram of Authority" is of value and deserves a careful study. The proper men for a hospital staff are those who have had a hospital training as assistants, this being the plan employed in choosing such individuals abroad, although it has not been done here. Politics, church and family influence have been largely the governing factors.

INTERNAL HERNIAE, ESPECIALLY THOSE OF THE FORAMEN OF WINSLOW.—Delkeskamp. (*Beit. zur Klin. Chir.*, Bd. XLVII, Heft 3).—This article embodies the report of the case of a woman twenty-two years of age, who was suddenly seized with colicky pain in the upper abdomen. She commenced to vomit, bowels refused to move, and remained in this condition for six days, at the expiration of which time she was brought into the clinic. Prof. Garre operated upon her, and found the large intestine greatly distended in its proximal portion, whereas the sigmoid was empty. The part of the colon lying between these two points had slipped through the foramen of Winslow and became incarcerated. A very ingenious means of returning this bowel to the general cavity was followed. Garre simply pressed the contents of the displaced portion out into the rest of the bowel, whereupon he was able to replace it.

Thirteen of these cases were found by the author in the literature, the one which he describes having made a very prompt surgical recovery.

AN ANOMALY OF THE DUODENUM, RESULTING IN DEATH AFTER GASTRO-ENTEROSTOMY.—James G. Mumford (*Annals of Surgery*, January, 1906).—This extremely interesting case represents one of the accidents which may complicate the most modern form of gastro-enterostomy. The short loop posterior operation had been done, and the next morning the patient assured Dr. Mumford that he felt more comfortable than he had done for years. The appetite rapidly returned, and the amount of nourishment was increased as conditions seemed to demand, until the fifth day, when suddenly there was a violent attack of abdominal pain, with profound collapse. A few hours later the patient died.

At the post mortem, the abdominal cavity was found full of stomach contents, the anastomosis having given way. As long as the stomach had remained dilated, the attached intestine remained in good position, but as soon as the stomach drained properly, it retracted so much that it placed the short loop on such a stretch that the sutures gave way, with the result just mentioned. The most interesting thing about this case is that the ligament of Treitz sprang from the right, instead of from the left crus of the diaphragm. This, of course, served in part to explain the accident which caused the patient's death.

ORTHOPEDICS.

IN CHARGE OF

NATHANIEL ALLISON, M. D.

USE OF TRACTION IN HIP DISEASE.—Bradford (*Amer. Jour. of Orth. Surg.*, January, 1906).—The arguments presented in this paper, which are made to show the value of traction in the treatment of hip disease, are as follows: An examination of all the pathological specimens of hip disease gives evidence of pressure crowding the head of the femur against the acetabulum. Patients suffering from hip disease in an acute stage have

an exaggerated muscular irritability, or state of muscular spasm, which causes this crowding. Bone that is disorganized by osteitis will not heal if violence of frequent contusion, or the crowding of one inflamed surface against another, is permitted. In the treatment of hip disease, the force which will counteract muscular spasm, and draw the head of the femur away from the acetabulum, favors correction, prevents deformity, and produces more rapid healing in the diseased bone. Experiment and skiagraphic evidence both demonstrate that a traction force may be applied, which will not only entirely overcome the spasm of the muscles about the hip, but which will also draw the head of the femur away from the acetabulum.

Traction is not needed during the whole period necessary for the treatment of hip disease, but is only needed in the stage of active muscular spasm. During the ulcerative stage, traction should be supplemented with fixation. Practical experience for many years in the larger orthopedic clinics in the United States has demonstrated the value of these views on the necessity of traction, as presented by Drs. Taylor and Sayre. No better proof could be furnished of the advantage of the traction method of treatment in hip disease thoroughly applied than is seen in the records of over 3,400 cases of hip disease carefully observed during the last thirty years at the Boston Children's Hospital.

Considering the contractile power of muscle, and the fact that the hip joint is surrounded by a group of strong muscles, it seems no other arguments need be presented to prove the injurious effect of exaggerated articular pressure, and also to prove the advantages to be gained by the use of traction in tuberculous disease of the hip.

CONGENITAL LUXATION OF THE HEAD OF THE RADIUS. Report of Two Cases; Analysis of Fifty-One Cases.—Blodgett (*Amer. Jour. of Orth. Surg.*, January, 1906.)—The author first reports two cases, one in a girl of 15 years, the chief complaint being a partial disability of either arm, illustrated by inability to grasp a plate or a spoon with the thumb on the upper surface; also there is unusual liability to fatigue in the arms. Radiographs showed on both sides an anterior position of the radial head, excessive length of the upper end of the radius, absence of the normal slight anterior concavity of the lower end of the humerus, and cancellated bone fusion of the upper part of radius and ulna. Case 2, a boy of 6 years. Since birth, fore-arms were fixed in extension and pronation. Radiographs taken show bilateral anterior position of radial heads, elongation of upper end of radius, no bone fusion. Owing to the permanent extension, the disability was great. At the age of four years, the upper end of the radius on each side had been excised. The boy can now feed himself, but he still grasps objects with thumb underneath.

Considering the cases reported in the literature, the author concludes that nearly two-thirds of the cases of congenital luxation of the head of the radius are in males; that it is equally common on the right and left sides; the commonest direction of the luxation is backward; forward luxations are nearly as common, and outward luxations only one in eight. In nearly all the double cases, mobility is more or less restricted. Supination is the motion most often lost. Elongation of the proximal end of

the radius seen in three-quarters of the cases; bone fusion of the upper part of the radius and ulna is present in one-third of the cases; in nearly half of the cases, there is some other deformity, oftenest partial deficiency of ulna or radius.

The congenital character of some of the fifty-one cases reported is open to doubt.

The factors to be considered in etiology are the special embryology of the elbow; congenital syphilis; heredity, and the conditions leading to congenital luxations in general. Excision of the head of the radius is indicated by considerable restriction of flexion or extension in uncomplicated cases. It is probably contra indicated in cases with practically free flexion and extension, or permanent pronation and bone fusion.

OUTDOOR LIFE VERSUS CONFINEMENT, IN THE TREATMENT OF BONE TUBERCULOSIS.—Wilson (*Penna. Med. Jour.*, January, 1906).—The object of this paper is to attract attention to the benefits to be derived from the open-air treatment of bone and joint tuberculosis and resulting conditions; to contrast such treatment with the results of confinement, and to earnestly urge the more general adoption of measures too seldom employed, and the value of which are too late recognized. The life-work of many orthopedic surgeons has been devoted to perfecting various methods of arresting the process of tuberculous bone and joint disease. It has been definitely established that tuberculosis of the bone need not run its course of extensive destruction, deformity, emaciation and death; that the three stages of hip disease are unscientific, unreal and to be discounted. It has been observed that osseous tuberculosis does not demand the varied atmospheric conditions that are necessary in the treatment of phthisis. Sleeping in tents or shacks, with the temperature almost at zero has not been injurious. Environment, mechanical fixation, appropriate clothing, feeding, occupation, exercise, massage, Bier's congestive method, various operative and corrective measures, require consideration in connection with the out-door life; but it has been noted that patients gain increased circulatory activity, which permits absorption and repair; have increased appetite, and possess a markedly improved mental attitude, when subjected to the open-air treatment. Surgical procedures should be ultra-conservative and offer the least possible interference with the outdoor life.

A NEW SCOLIOSIS APPARATUS.—Heusner (*Zeit. fur Orth. Chir.*, Band xiv, Heft 3-4).—This apparatus consists of fixing the child upon a board by the use of half-ringed pressure pads, which over-correct the side division of the spine, and produce fixation. The apparatus is designed to be used at night, in conjunction with exercises and massage employed in the day-time.

FRACTURES OF THE METACARPAL BONES.—Russ (*Annals of Surg.*, February, 1906).—Since the X-Ray has come into use in diagnosing fractures, it is safe to assume that many cases which had previously been diagnosed as contusions and dislocations are now definitely seen to be fractures of the metacarpal bones. There is scant literature on this subject, this fact leading the author to collect a series of twenty-seven cases.

These fractures present few difficulties. The fractured bone is well splinted by its fellows. Deformity is often slight, and reduction fairly easy. Of the twenty-seven cases reported, one case occurred between the ages of 10 and 20 years; eight cases between 20 and 30 years; ten cases between 30 and 40 years; five between 40 and 50 years; two between 50 and 60 years, and one over 60 years. In but one case of the series was more than one metacarpal bone fractured. These cases were practically free from complications. The first metacarpal was fractured in 29 per cent; the second in 15 per cent; the third in 11 per cent; the fourth in 15 per cent; the fifth in 26 per cent; and the fourth and fifth together in 4 per cent. A fracture usually results from indirect violence,—a blow delivered with a clenched fist, the force being received on the distal end of the bone, and operating in the direction of its long axis. The diagnosis presents few difficulties. All the bones are easily palpable, and in fresh cases crepitus can generally be obtained.

Scudder recommends the following method, both for purposes of diagnosis and to accomplish reduction: "Grasp the finger corresponding to the fractured metacarpal in the whole right hand, steadying the uninjured metacarpal with the left hand, and make steady and continuous traction." In one of the author's cases, where there was considerable displacement, reduction was accomplished by means of forcible traction, and the following dressing was then applied: Two slate-pencils were placed as coaptation splints, on each side of the broken metacarpal, two in the palm of the hand and two on the back of the hand. This extended from the metacarpal base to the middle of the shaft of the first phalanx. The slate-pencils were firmly secured in position by means of two narrow strips of adhesive plaster passed about the hand.

GENITO-URINARY SURGERY.

IN CHARGE OF

H. McC. JOHNSON, M. D.

THE DIAGNOSIS OF LARGE NEOPLASMS IN THE LEFT HYPOCHONDRIUM.—Giauffer (*Am. Jl. of Urol.*, February, 1906).—In reporting cases in which a neoplasm of the left kidney was diagnosed as splenomegalia, and a hydatid cyst of the spleen and omentum mistaken for a tumor of the left kidney, draws the following conclusions: In diagnosis of tumors of the left hypochondrium, it is sometimes very difficult to differentiate a renal growth from a splenomegalia. Under these circumstances the information obtained from the situation and shape of the tumor cannot be of any great value, and the same may be said of the results obtained by percussion. Ballotement is distinctly in favor of renal neoplasm but does not constitute a pathognomonic sign. A recently appearing varicocele is a most important symptom in favor of a renal localization of the growth. Examination of the blood should always be done and may occasionally solve the problem. On the other hand, examination of the urine is often insufficient, but intra-vesical separation should be undertaken in doubtful

cases and may give rise to very important results. Insufflation of the colon may always be undertaken on account of its innocuity and easy execution and will perhaps, give some interesting information.

EXTROVERSION OF THE BLADDER: RELIEF BY TRANSPLANTATION INTO THE RECTUM.—Moynihan (*Annals of Surg.*, February, 1906).—This case is exceedingly interesting from the success obtained and from the fact that the nutrition of the large area of the bladder transplanted depended solely upon the vessels in the small amount of tissue left surrounding the ureters. A plastic operation had been performed fifteen years before with only partial success, the lower portion of the bladder which contained the ureters remaining exposed.

Operation: The catheters having been placed in the ureters, a median incision was made toward the umbilicus, through the flaps which had turned over the upper portion of the bladder at the previous operation. An incision was now made all around the mucous membrane of the bladder, between the mucosa and the skin, and the incision deepened by degrees until a good thickness of the bladder could be raised. Dissection was carefully carried toward the ureters until the whole bladder was isolated, leaving only as its pedicle the ureters with as much surrounding tissue as possible. The serous covering of the rectum was stripped up until four or five inches of the bowel were exposed, an incision three and one-half inches long was made in the rectum, into which the bladder, turned upside down, was placed and the catheters, previously inserted into the ureters, brought out of the anus. The edges of the bladder and rectum were stitched together with continuous Lembert sutures and the skin edges along the original median incision approximated except one inch at the bottom where apposition was impossible. The case made a satisfactory recovery. The catheters were left in position for four days; after their removal urine passed into the rectum and dribbled out at the anus which, owing to previous stretching, had not regained control. On the seventh day a little urine began to leak from the abdominal wound. This was stopped by suture on the fifteenth day and no further leakage occurred. All urine escaped by the rectum and at the end of a month control was perfect. Several months after operation the interval between the acts of emptying the rectum was three to five hours. The urine was normal on examination and no line of junction could be felt between the mucous membrane of what had been the bladder and the mucous membrane of the rectum. There was a fairly capacious cloaca.

SURGICAL INTERFERENCE IN MEDICAL NEPHRITIS.—Harrison (*Am. Jl. of Urol.*, February, 1906).—Considering the damage inflicted upon the kidney structure by increased tension within the capsule, and by continued contraction of a thickened capsule, the writer believes that surgical interference for the purpose of relieving tension is indicated in some forms of nephritis and gives the following indications for such procedure: (1) Progressive signs of kidney deterioration as shown by the persistence or increase of albumen when it should be disappearing from the urine, as in the natural course of inflammatory disorders ending in resolution. (2) Suppression of urine or the approach of this state. (3) Where a marked

disturbance of the heart and circulatory system occurs in the course of inflammatory renal disorders.

He does not believe it absolutely material to the issue which organ is selected for operation, unless there is something to indicate it, as both kidneys are usually involved and relief of one aids the other, and thus the normal amount and constitution of the urine may be re-established.

A NON-OPERATIVE METHOD OF TREATING PROSTATITIS.—SNOW (*Med. Record*, January 13, 1906).—The author describes the method of treating prostatitis by application of electrical currents which, by stimulating contractions of the structures of the gland, relieves it of the products of inflammation and restores tonic circulation, by this means overcoming the chronic process as far as possible, depending upon the amount of organic change which has already taken place. He reports several cases to show the results obtained and draws the following conclusions: (1) Where simple congestion is present in the early stages of the affection the relief is prompt. (2) When the gland has been enlarged for a number of years with resulting infiltration and the development of vesical irritation and obstruction of the urethral passages, the lesion is capable of being abated and the congestion relieved with the absorption of infiltrated exudates, the hyperplastic tissue only remaining. (3) In the aged, in whom the gland has become greatly enlarged, and is dense and hard from growth of hyperplastic fibroid tissue, the inflammatory process will be abated, affording a degree of relief to the obstruction commensurate with the site and extent of the inflammatory process. The dilatation of the bladder which has intervened may be greatly relieved, and cured in most instances, by the persistent application of the electrical current over the pubis and by an electrode carried high into the rectum and pressed forward against the bladder, together with judicious washing of the bladder and the use of strychnine. The current applied in this manner induces temporarily contraction of the muscular coats, and finally restores sufficient tone to enable the organ to empty itself completely.

GYNECOLOGY AND OBSTETRICS.

IN CHARGE OF

HUGO EHRENFEST, M. D.

HAS EXPERIENCE SUSTAINED THE MORE RADICAL OPERATION FOR CANCER OF THE UTERUS?—JOHN G. CLARK (*Surg. Gynec. and Obstetr.* Feb. 1906).—This paper contains a very complete history of the lymph-gland problem in the question of the radical operation for uterine cancer. Clark, once one of the strongest advocates, in fact one of the originators of the routine extirpation of the pelvic lymphglands, writes today: "My own conclusion, although very reluctantly reached—for I had hoped for decided improvements in permanent results—is, that we lose more than we gain in the radical operation when the glands are painstakingly

extirpated, and to remove here and there a palpably enlarged gland will certainly not promote the patient's interests, so far as a radical cure is concerned. My own rule, therefore, is to remove one or more glands for microscopic examination, provided they are palpably enlarged and easily accessible. If metastasis is found, the prognosis is inevitably bad."

His present operation consists of the extirpation of the uterus and the upper portion of the vagina together with the surrounding connective tissue by means of the cautery.

ON THE TREATMENT OF PUERPERAL ECLAMPSIA.—Roger de la Harpe. (*Jour. of Ob. and Gyn. of Brit. Emp.*, Febr., 1906.)—The treatment advocated in this article is that, without any exceptions, applied in the famous Rotunda Hospital of Dublin. It differs essentially from the mode of treatment generally advised by American authorities. "Induction of labor is never performed, nor is labor counted on in this treatment. The only intervention permissible locally (and this only in very exceptional cases) is the application of forceps, the head being on the vulva."

The chief feature of the Rotunda treatment is the administration of morphia in heroic doses. Half a grain is given hypodermically, and repeated, if necessary, in a dose of a quarter or a grain every two hours, up to a maximum total of two grains in 24 hours. The elimination of toxic material is propagated by washing of the stomach, and introduction of fluid through the stomach tube and into the rectum. [No mention is made of hypodermoclysis!] The writer lays special stress upon the necessity of keeping the patient continuously on her side in order to prevent foreign bodies from entering the trachea and so causing pulmonary edema and its sequences.

The fact that in the Rotunda Hospital the mortality of eclampsia is 16.9 per cent proves to the author conclusively that this is the best mode of treatment of puerperal eclampsia.

In the discussion following the reading of this paper before the Royal Academy of Ireland, Sir Arthur Macan pointed out the fact that the profession almost universally recognized that the termination of labor was a very important point in the treatment; the use of dilators, of Cæsarian section, etc., all pointing to a belief in the efficacy of delivering the woman, and to a non-belief in the efficacy of the morphia treatment. Horne objected to the essayist's comparison of statistics of twenty-five years ago with those of the last ten years, because the introduction of antiseptics certainly had reduced the mortality. Every case had to be treated on its merits. There is no routine treatment of eclampsia, and we must be prepared to use morphia, and in other cases, vaginal section, or the Bossi dilator or Cæsarian section. Of special interest were the remarks of Jellett, who has been represented by that most ardent defender of extreme conservatism, Herman, as a defender of the radical treatment when in fact at that time he was distinctly opposed to it. Since that time, in view of more modern statistics, his views have changed and he was looking with favor on the radical treatment in severe cases. The radical treatment of emptying the uterus from the start should be adopted in certain instances. As far as the proceedings of this meeting are recorded in the *Jour. of Ob. and Gyn. of the Brit. Emp.*, (vol. ix., p. 70) only

the chairman, R. D. Purefoy, supported the essayist's conservative views by stating that no method of rapidly emptying the uterus had ever commended itself to him.

BLOOD EXAMINATIONS IN PUERPERAL FEVER.—Kownatzki (*Hegar's Beitr. sur. Geb. und Gyn.*, vol. x., h. 2, 1906).—Even the bacteriologic examination of the lochial secretions proves unreliable in the prognosis of puerperal infection. More satisfactory in this respect, in the author's opinion, is the examination of the blood. From observations made in twenty-eight cases the following conclusions are drawn: 1. *Prognostically favorable*: Little or no change in the proportion of mono and polynuclear neutrophiles. The presence of eosinophiles. 2. *Prognostically unfavorable*: A leucocytosis of about 50,000, an increase in the proportion of the mononuclear neutrophiles, an absence of eosinophiles, a reduction in the number of erythrocytes. 3. *Improvement to be expected*: Reduction in mononuclear neutrophiles, appearance of eosinophiles. 4. *Turn to the worse probable*: Reduction of number of both mononuclear neutrophiles and eosinophiles. 5. *Prognostically absolutely bad*: Appearance of poikilocytosis with polychromasy and appearance of nucleated erythrocytes.

The writer employed the May-Gruenwald eosin-methylen blue stain which does not require a fixation of the specimens.

PEDIATRICS.

IN CHARGE OF

ALFRED FRIEDLANDER, M. D.

RHEUMATISM IN CHILDHOOD.—In a symposium on this subject at the New York Academy of Medicine (*Arch. of Pediatrics*, January, 1906), Bovaird discussed the pathology and etiology. He believes that there is some ground for the theory of a hereditary predisposition, though it would seem to be less important than is generally supposed. He accepts the diplococcus rheumaticus as the specific etiological factor of the disease because of its discovery by many independent investigators in the blood tissues, secretions and excretions of rheumatic patients, because of its isolation in pure culture, and because its inoculation in susceptible animals regularly produces arthritis, pericarditis, endocarditis, myocarditis, pleurisy, iritis and chorea. While the chain of evidence is not quite complete, it seems fair to conclude that rheumatism is an infectious disease even though the specific cause is not yet definitely demonstrated.

McConnell has analyzed five hundred cases from the Vanderbilt Clinic, with reference to the first rheumatic manifestations. In 35 per cent of these cases, tonsillitis was the first sign of the rheumatism. Endocarditis occurred as the primary manifestation in 23.5 per cent of the cases, and about the same proportion showed articular signs first. In 14.5 per cent of the cases, chorea was the first manifestation. Growing pains occurred

first in 2 per cent, but it is noteworthy that of these cases, 60 per cent were complicated by some cardiac lesion. Torticollis occurred in 1 per cent, purpura in 0.5 per cent.

Kerley discussed the differential diagnosis. He says that under fifteen months the disease is very rare. The majority of his cases have occurred in children between five and ten years of age. The history of previous attacks of angina, chorea, asthmatic bronchitis, and evidence of former cardiac involvement are important factors in diagnosis. Scurvy is frequently confused with rheumatism but the age incidence of the two diseases is different, for scurvy is essentially a disease of infancy. Attention is called to the fact that the referred pain of Pott's disease, and of tubercular lesion of the hip are not infrequently confused with rheumatism. Syphilitic periostitis of the long bones is at times considered as rheumatism. In general, it may be said that the older the child, the more closely does rheumatism correspond to the clinical signs as seen in the adult. Endocarditis occurs in the majority of cases of acute articular rheumatism, and should be considered as a manifestation of the disease and not as a complication. In obscure cases, this may be a valuable diagnostic point, for the endocarditis may be the only rheumatic manifestation present at the time in a given patient.

Discussing the prophylaxis of rheumatism, Crandall spoke of the value of proper clothing for rheumatic children (flannel should be worn next to the skin all the year round). (2) Exercise and out of door life. Damp weather is apt to be much more dangerous than cold weather, and avoidance of exposure in damp weather is therefore essential. Exercise in moderation can only do good. Cool bathing and vigorous skin friction are often of value. (3) The prophylactic care of the throat, removal of adenoids and enlarged tonsils are to be strongly commended. The careful attention to even slight illnesses in rheumatic children, may at times ward off attacks. (4) Regarding prophylactic medication, the author insists upon the value of the salicylates, in small doses, given between the attacks. Such doses in some cases may be given with benefit for months at a time, even in the absence of any distinct rheumatic manifestation.

Concerning the dietetic treatment, Thompson says that rheumatism cannot be influenced specifically by any system of preventive diet. The dietetic treatment of this disease is covered completely by the fundamental principles for feeding any child, namely, to select foods for their digestibility, and to meet the demands of growth and development.

Concerning the medicinal treatment, Shannon finds that the salicylates act better when given in combination with soda and rhubarb. The treatment for the various symptoms and for the most important complications is detailed. The methods advocated are those in general use.

GLANDULAR FEVER.—Vipond (*Arch. of Ped.*, January, 1906), reports twelve cases, and insists that glandular fever is to be considered as a clinical entity. While he does not believe that the disease can be classed among the common infections of childhood, he holds that it cannot be considered rare, believing that it is frequently overlooked, that many cases of glandular fever are considered as cold, influenza, etc. The disease sets

in with the usual symptoms of infection in childhood, fever, malaise, pains in limbs, etc. In 24-48 hours, there is usually pain and stiffness in the neck, with the enlargement of the lymph nodes. It is to be noted that there is very rarely any associated pharyngitis. The nodes at the angle of the jaw, and those at the anterior border of the sterno-mastoid, later those at the posterior border of the muscle, become involved. The patient is fairly comfortable while at rest, but the slightest movement of the head causes severe pain. The axillary and inguinal nodes are involved in most cases. It is probable that the mesenteric nodes are involved in many cases, inasmuch as abdominal pain and tenderness are usually marked. The evening temperature remains high for from three to seven days, often ending by crisis. Swelling of the glands usually persists for at least three weeks. In some cases suppuration occurs, though the author is inclined to the belief that in these cases we are not dealing with a true glandular fever, but with a local source of infection somewhere.

The prognosis is usually good. Hematuria and nephritis have been noted as occasional complications. The treatment advocated is largely symptomatic. Locally, iced bichloride compresses have given the author good results.

ACUTE FATAL CHOREA.—Leante (*These de Paris*, 1905, *Rev. Mens. Janvier*, 1906), says it is universally recognized that death does occur in chorea. In certain cases death comes on rapidly, preceded by well marked acute phenomena. These acute, fatal cases of chorea are caused by diverse infections, in a third of the cases, by rheumatism.

This fatal form is characterized by its infectious causative factors, and by the existence of definitely infectious phenomena, among which are: hyperpyrexia, rapidity of the pulse, and the occurrence, in some cases, of ante mortem erythemata of various kinds. The course of this form is marked by its rapidity and in the course there occur various lesions of the body tissues, more particularly cardiac degenerations.

NEUROLOGY.

IN CHARGE OF

SIDNEY I. SCHWAB, M. D.

THE HISTOLOGICAL APPEARANCES OF THE CORD AND MEDULLA IN A CASE OF ACUTE ASCENDING PARALYSIS.—Workman Hunter. (*Rev. Neurology and Psychiatry*, February, 1906).—The symptoms of this case were apparently those of an acute ascending paralysis and from the clinical point of view might be regarded as belonging to the group to which Landry's paralysis has been given. The lesion found on microscopic examination was that of an acute myelitis. There was a marked infiltration of round cells throughout the whole length of the cord. This was most abundant in the lumbo-sacral and dorsal regions, rather less in the cervical. The white matter of the cord was unaffected except that the peri-

pheral arteries running through it showed infiltration in the perivascular spaces but not in the tissue beyond that. The vessels in the cord were greatly dilated and there was some slight capillary hemorrhage into the grey matter. The appearance therefore was that of an acute diffuse interstitial myelitis limited to the grey matter of the cord in which the nerve cells showed definite pathological changes, with the inflammatory process passing upward into the grey matter of the medulla and pons. The case is regarded as a form of intoxication in which a toxin of some sort gained entrance into the circulation and that it acted on tissues unusually sensitive to such toxin, producing a degeneration in ganglion cells and at the same time determining the infiltration of round cells which are such a marked feature of the case.

AN UNDESCRIBED SYMPTOM OF PARALYSIS OF THE SOFT PALATE (CHANGE IN THE CHARACTER OF THE SPEECH DISTURBANCE IN LYING DOWN AND IN SITTING UP).—Schlesinger (*Neurol. Cent.* No. 2, 1906).—Three cases are here described in which a peculiar phenomenon was observed consisting of the alteration in speech in different positions of the patient. When the patient was lying down the speech was a great deal clearer than when sitting up. One case was multiple sclerosis and the other two cerebro-spinal syphilis. The explanation of the symptom is based upon the mechanical factors involved in the position of the flaccid palate.

DEMENTIA PRAECOX IN FRANCE WITH SOME REFERENCES TO THE FREQUENCY OF THIS DIAGNOSIS IN AMERICA.—Farrar (*American Journal Insanity*, No. 2, 1905).—This is a most readable and suggestive article and throws light on a question which is a disturbing factor in most meetings of societies devoted to the discussion of this question. Krapelin's description of this type and its growing importance is measured by the headway it has made among the French alienists who, in the beginning, were opposed to its acceptance in the classification. Farrar describes the evolution of this idea in France, dealing especially with the meeting of the French alienists at Pan, 1904, where the issue was squarely met and where the opposing forces had a chance to state their views clearly. As a result it was clearly seen that their idea of dementia praecox had made great progress in France and that, on the other hand, there was as yet, no unanimity of opinion in regard the exact meaning that was to be attached to the term. An examination of the records of some prominent American asylums showed that dementia praecox was gradually growing in popularity and at the expense of the time honored and all-embracing receptacles, mania and melancholia.

PROGRESSIVE MUSCULAR ATROPHIES; A STUDY OF THE CASES AND CLASSIFICATION WITH THE REPORT OF AN AUTOPSY.—Dana (*Journal Nerv. and Ment. Dis.*, February, 1906).—This paper is a study of the records of seventy-two cases of progressive muscular atrophy of bulbar or spinal origin. The three points which the author has especially studied in connection with these histories are the clinical classification, the ætiology and especially the etiological relation of syphilis to this disease and the

question of the proper status of the so-called chronic anterior poliomyelitis and its relations to the atrophies. The general conclusions of this study are that all groups of central progressive atrophy not due to a tumor, are essentially the same disease in genesis, course and underlying pathological condition, except that we may separate the progressive occupation atrophies and certain acute atrophies. Amyotrophic lateral sclerosis, though pathologically and essentially of the character of the other atrophies, may receive a separate name on account of its clinical and anatomical peculiarities. The grouping would then be progressive muscular atrophy; amyotrophic lateral sclerosis; progressive occupation atrophy (not the ordinary limited and arrested type), subacute progressive atrophy, often recurrent and usually syphilitic. Progressive muscular atrophy is most often excited by prolonged muscular overexertion. It is in one-quarter at least of the cases, parasyphilitic and in the other parainfectious.

OPHTHALMOLOGY.

IN CHARGE OF

JOHN GREEN, JR., M. D.

THE BACK OF AN EYE FROM A CASE OF AMAUROTIC FAMILY IDIOCY.—F. J. Poynton and J. H. Parsons (*Ophthalm. Soc. of the United Kingdom*, Meeting of Nov, 9th, 1905).—The specimen was taken from a child the youngest of a Jewish family in which this disease had manifested itself; this child during life had presented the usual symptoms and retinal changes of the disease. On removal of the posterior half of the globe and on floating it in water it was found that there was a minute hole in the retina at the macula, and at the macula itself—if there was any retina at all—it was so thinned and atrophied that its presence could not be detected, but just round this hole the retina appeared considerably thickened. The choroid was cherry red in colour and the explanation of the cherry red spot could be strikingly demonstrated by floating a strip of white paper between the choroid and the retina when the spot vanished, to reappear when the paper was removed. The red spot was produced by the choroidal pigment seen through the minute aperture, its vivid colour being made more apparent by the zone of pallor—the result of thickening of the retina—round it.

OCULAR SYMPTOMS OF AFFECTIONS OF THE ACCESSORY SINUSES OF THE NOSE.—W. C. Posey (*Jour. A. M. A.*, September 9, 1905).—This paper is a very complete synopsis of ocular symptomatology in accessory sinus disease and will well repay reading. Posey calls attention to the increasing number of practitioners who limit themselves to either ophthalmology or rhinology as contrasted with conditions a few years back when these specialties were almost always associated. He finds this divorce not altogether a fortunate one, especially in the light of recent knowledge of the important role played by the accessory sinuses of the nose in the etiology of many ocular troubles.

Disturbances in vision and the visual fields. In many inflammatory conditions of the sphenoidal and posterior ethmoidal cells the optic nerve is involved to a greater or less degree. Edematous infiltration of the nerve occurs, characterized ophthalmoscopically by slight veiling of the edges of the disk and dilation of the retinal veins. If the sinusitis be unchecked a true retrobulbar inflammation may develop. Vision is apt to be found somewhat impaired, especially under diminished illumination. At times central and paracentral scotoma with concentric contraction of the field, can be made out.

Changes in the orbit. Most inflammations of the orbit are occasioned by accessory sinus inflammation. An early sign of involvement of the orbit is a change in the contour of the orbital ring. The character of the displacement of the globe may be of value in determining the particular sinus involved. The location of a pointing abscess may also indicate the sinus affected. The special ocular symptomatology of involvement of the different sinuses is carefully considered. It is not necessary that there should be an actual destruction of bone to give rise to suppuration in the orbit, as infection may be carried by fine vascular or lymphatic emissaries.

Affections of the lachrymal apparatus. Prelachrymal abscess, originating in the frontal sinus or deeper parts of the orbit, may very closely simulate abscess of the lachrymal sac. On passing a probe into the sac no pus is released and it is not reached until the probe is passed horizontally into the inner orbital wall.

Affections of the lid. A persistent edema is the most marked lid symptom of sinus disease. It is most marked in the mornings and may be brought on by bending the head forward.

Affections of the extraocular muscles. Complete paralysis may ensue from acute inflammation of the apex of the orbit secondary to acute ethmoiditis and sphenoiditis. Paresis may be occasioned by direct inflammatory infiltration of the belly of the muscle itself, or by an involvement of the nerves as they enter the orbit. Diplopia is not, as a rule, complained of, but can often be elicited in the periphery of the field. Often the imbalance created is sufficient to confuse vision, cause vertigo and render near use of the eyes difficult. The palsies may be transient and may disappear, only to reappear. On this account and because of the pain, such a condition due to sinusitis may be mistaken for recurrent oculo-motor palsy.

Affections of the conjunctiva. Conjunctivitis, often follicular in type, is frequently associated with sinus disease.

Affections of the cornea. Occasionally herpetic-like blisters may form on the cornea as a consequence of implication of the fifth nerve as it passes along the outer wall of the sphenoidal sinus.

Affections of the uveal tract. The author is not inclined to accept the theory of a sinus origin for certain cases of uveitis despite the recent positive assertions of Fish, Fromaget, Zeim and others.

Asthenopia. Asthenopia may be traced to an interference with the ciliary muscle, and actual testing will show a diminution in the range of accommodation.

Headache and neuralgia. The headaches of sinusitis usually occur in the morning and are characterized by continuous pain with exacerbations which radiate around the orbit and within the zone of distribution

of the fifth nerve. Injection of the conjunctiva is often present. The location of the pain is generally characteristic and will enable a shrewd guess to be made as to the sinus involved. In frontal sinusitis pain is evoked by palpating the forehead and the roof of the orbit at its upper inner angle.

INFLUENCE OF FRYNIN ON THE EYE.—V. Popow. (*Ophthalm. Review*, January, 1906).—Frynin, the alcoholic extract from the cutaneous and so-called parotid glands of toads, has been prepared by Popow according to Kravkow's method. For instillation into the conjunctival sac, he uses a one per cent. aqueous solution, boiled before use. Blepharospasm, free lachrymation and photophobia are evoked immediately upon dropping the solution into the conjunctival sac; later, edema and slow loss of sensibility of the cornea. The epithelium of the cornea is affected much as cocaine affects it. The pupil is narrowed slightly, but refraction, accommodation, vision and the field of vision remain unchanged. No augmentation of intraocular tension.

Popow has performed under the influence of frynin iridectomies, discissions and some openings of the puncta.

LARYNGOLOGY AND OTOTOLOGY.

IN CHARGE OF

WILLIAM E. SAUER, M. D.

ANTROTOMIES AND RADICAL OPERATIONS UNDER LOCAL ANESTHESIA.—Neuman. (*Zeitschrift fuer Ohrenheilkunde*, January, 1906.)—The author reports in detail ten cases in which the antrum was opened in acute mastoiditis and ten cases in which radical mastoid operations were done under local anesthesia. His method of procedure is as follows: The patient is given a full meal, as it has been found that the danger of a cocaine intoxication is greatly lessened after a full meal. The field of operation is prepared in the usual way and a solution, consisting of 5 cm. of a 1 per cent sol. cocaine, 12 drops of adrenalin and 3 cm. of normal salt solution is injected under the periosteum at several points over the mastoid. The author has devised a special syringe with a strong needle. These injections are easily made over all portions of the mastoid, excepting the tip where the periosteum is very adherent, but even there portions can be made anesthetic. Another important point is to anesthetize the anterior surface of the mastoid; this is done by inserting the needle just at the anterior insertion of the auricle parallel to posterior wall of the auditory canal. At the end of ten minutes the operation can be begun. For the radical operation from 7 to 8 c.m. of a 1 per cent sol. of cocaine, 15 drops of adrenalin and 5 to 6 c.m. of normal salt solution are used. The injections are made at the same points with additional injections in the superior, inferior, anterior and posterior walls of the external auditory canal, just at the junction of the cartilaginous and membranous canal. In all the cases reported the time required for the operation was

from one hour to an hour and a quarter. The operation was all completed with practically no pain, only in the radical operations. The curetting of the Eustachian tube was always painful, even when a pledget of cotton soaked in a 20 per cent solution of cocaine had been applied, but as this required only a moment, this is not looked upon as a serious objection.

The contraindications for the use of local anesthesia in these operations are (1) a subperiosteal abscess. In these cases there is an interference with the absorption of the cocaine solution. (2) In very nervous individuals local anesthesia is not advisable. (3) It is contraindicated in all cases where a general anesthetic is contraindicated. In cases where the posterior or upper canal wall has become loosed from the bony wall.

THE INDICATIONS FOR OPERATION IN CHRONIC SUPPURATION OF THE MIDDLE EAR.—Smye. (*British Medical Journal*, Feb. 3, 1906.)—The objective signs indicating operations in cases of chronic suppuration of the middle ear are, according to Smye, as follows: 1. Pain on pressure over the mastoid, or more particularly over the antrum, that is, immediately behind the petro-superior angle of the meatus. This may be accompanied or not by post auricular swelling, and points to the supervention of an acute mastoiditis, or more often to caries affecting the external wall of the mastoid process or of the antrum. There is a possibility of error with reference to this sign, which to recognize will be to avoid. Furunculosis may occur with acute as well as with chronic otorrhœa. It is frequently attended by a temporary swelling behind the auricle. The absence of sagging of the postero-superior wall of the meatus, which is commonly got in mastoid empyema as a result of acute middle ear suppuration, will point rather to caries of the external antral or mastoid wall. 2. A sinus behind the ear leading to an erosion into the bone. This is self-evident. 3. Caries of the petrous bone as disclosed by examination with the speculum and probe. The examination should be conducted methodically, the different parts of the ear being sounded with the probe to discover early carious foci. The caries may be isolated and accessible to treatment through the meatus. 4. An extensive or recurring growth of granulation tissue, pointing to invasion of the bone, is looked upon by Smye as a decided indication for operation. 5. Facial paralysis. 6. The presence of thick, cheesy masses in the tympanic cavity, the inference being that the same condition exists in the antrum. 7. Very foul smelling discharge. This is often the result of extensive involvement of the bone and the discharge may not be of large amount. 8. Stenosis of the meatus, either membranous or bony, both of which may be due to irritation caused by the purulent discharge. 9. Bacteriological examination of the discharge has hardly yet reached the stage of clinical importance. At present it would appear that a pure streptococcus infection is more destructive than the usual mixture of streptococci and staphylococci. The colon bacillus and the pneumococcus seem to exert a special baneful influence. 10. Persistent discharge in spite of regular and thorough antiseptic treatment.

SOME UNUSUAL MANIFESTATIONS OF SYPHILIS IN THE UPPER AIR PASSAGES.—Simon (*British Medical Journal*, Jan. 13, 1906) reports the following four unusual manifestations of syphilis of the upper air passages: 1. Precocious tertiary syphilis of the throat and tongue of malignant type. 2. Tertiary syphilis of larynx and trachea followed by isolated tertiary syphilis of the naso-pharyngeal cavity. 3. Early fibroid infiltration of pharynx and larynx in a case of obstinate recurring secondary syphilis. 4. Tertiary syphilis of the larynx manifested particularly by periodical inflammation of ephemeral papillomatous excrescences. These cases are striking illustrations of the many varied forms in which the disease may manifest itself. They also showed that, while ordinarily it is easy enough to follow the routine methods with regard to diagnosis and treatment, yet cases occur where no set rule can be followed. The inunction treatment is most successful in syphilis of the upper respiratory passages, yet in two of these cases it failed. In the first case, neither the mercury or potassium iodide could be employed, showing that in some cases anti-luetic treatment must not always be persisted in.

ALYPIN IN RHINO-LARYNGOLOGICAL PRACTICE.—Finder (*Berliner Klinische Wochenschrift*, Jan., 1906).—The author has been experimenting with alypin, a glycerine product, as a substitute for cocaine. Alypin is placed on the market by Friedr. Bayer and Co. of Elberfeld, Germany, as a white, crystalline powder, which is readily soluble in water and is of neutral reaction. It is claimed that it is 2 to 3 times less toxic than cocaine. In contradistinction to cocaine it is a vaso-dilator, which makes it a very valuable anesthetic in certain operations in the nose. The author states that alypin in 20 per cent solution has been employed extensively for several months in the University of Berlin clinic for diseases of the nose and throat, and in no case have they had any disagreeable symptoms arising from its use. Finder believes it is of special value in endolaryngeal surgery. He has operated on a number of cases of tuberculosis of the larynx and found the anesthesia entirely satisfactory, the anesthesia lasting from 8 to 10 minutes. He concludes that this anesthetic is a satisfactory substitute for cocaine and especially valuable in laryngo-rhinological practice.

DERMATOLOGY AND SYPHILIS.

IN CHARGE OF

MARTIN F. ENGMAN, M. D.

MUCOUS MEMBRANE LESIONS IN LUPUS ERYTHEMATOSUS.—Thomas Smith (*Brit. Jl. of Derma.*, February, 1906).—Lupus erythematosus upon the mucous membranes is rather a rare condition and when it does occur can easily be confounded with syphilitic lesions of that tissue, especially when it occurs in the mouth. The writer of this article quotes sixteen cases and finds that the most common site of the lesion is on the mucous membrane of the cheeks opposite the upper and lower molars. Next in

frequency the hard palate is involved. He comes to the following conclusions: 1. Lesions of the mucous membrane in lupus erythematosus are more common than is generally supposed, the collection of cases referred to in his article giving a percentage of 28. 2. The lesions are proportionately more frequently met with in cases of the disseminated type. 3. The affection is most commonly seen on the mucous membrane of the inner surface of the cheeks. 4. The presence of the lesions is an important aid in diagnosis. 5. The lesions do not materially affect the course of the symptoms of the disease and do not appear to call for any special local treatment.

PITYRIASIS VERSICOLOR TERMED TUBERCULOSIS DERMATOMYCOSIS.—Piery and Renoux (*Lyon medicale*, January, 1906).—The writers conclude from the careful inoculation of scales of pityriasis versicolor into the guinea pig from the human that it is capable of causing tuberculosis in the animal. Control experiments from the scales did not cause tuberculosis in guinea pigs. The writers state that pityriasis versicolor occurs most often in cases of abortive tuberculosis and they think from the results of their work that pityriasis versicolor may be considered as a probable tuberculosis dermatomycosis.

TREATMENT OF PSORIASIS.—E. von Düring (*Deutsch. med. Wochen.*, December, 1905).—Von Düring thinks that more attention should be paid to baths in the treatment of psoriasis. Hot and cold douches should be used; the length of the douches depending on the sensitiveness of the skin of the individual. Sweat baths are also of importance. He prefers oil of cade to chrysarobin and interdicts the use of alcohol, coffee, and tobacco and a too nourishing diet. He does not place much stress upon the internal treatment of psoriasis, using internal treatment only symptomatically.

THE RELATION OF LESIONS OF THE GASSERIAN AND POSTERIOR ROOT GANGLIA TO HERPES OCCURRING IN PNEUMONIA AND CEREBRO-SPINAL MENINGITIS.—W. T. Howard, Jr. (*Am. Jl. of Med. Sc.*, December, 1905).—The writer brings forth additional proof to show that herpes zoster as well as the herpes in pneumonia and cerebro-spinal meningitis is dependent upon lesions of the sensory ganglia, which may be caused by different agents. He found the changes identical with those described by Head and Campbell. He believes the changes in meningitis to be due to extension of the inflammatory processes along the nerve roots and in other conditions the toxic material is brought to the ganglia through the circulation.

SOCIETY PROCEEDINGS.

ST. LOUIS SURGICAL SOCIETY.

Meeting of January 17, 1906.

AXILLARY CARCINOMA WITH INVOLVEMENT OF NERVES.

Dr. Guthrie McConnell read a paper with this title for which see page 310.

DISCUSSION.

Dr. Glasgow asked if it was not generally the case that some effect of the cancerous growth was seen beyond the zone of the actual cancer. When there is a malignant growth on the outside it will generally be found that the growth extends internally.

Dr. McConnell said there are certain reactions seen, but usually they are more of an inflammatory character, that is, an increase of connective tissue cells, and as a rule the epithelium does not take on a malignant change. The change is more of a degenerative nature. In the specimen indicated a close examination would show that comparatively normal epithelium could not be found except at quite some distance from the ulcerative process. The criticism in regard to ascites not being marked in the early stage seemed to him not valid, because it is known that increased blood pressure does not cause transudation. There must be some molecular change in the walls of the vessels. In the liver there is a growth primarily occurring around the portal vein. At first there is merely pressure upon the vein, the blood pressure consequently being increased, but we do not then have degenerative changes taking place between the vessel walls, so that there would not be any transudation. Then, again, he believed the degeneration was due more to the toxemia than to the action of the surrounding connective tissue. This, he thought, would explain the later appearance of the ascites and would also support the toxemic theory.

In regard to Dr. Glasgow's question concerning the enlargement of the abdominal vessels, he thought that could be explained on the theory of the blood seeking the direction of the least resistance.

BOOK REVIEWS.

HYGIENE AND PUBLIC HEALTH. By B. Arthur Whitelegge and George Newman. Chicago: W. T. Keener & Co., 1905.

The book represents a very complete and clear representation of the present status of the subjects named in the title, combined with a sane and restrictive tendency of views in the direction of perfectness and absoluteness. It is a very valuable work as a source in which reference to any problem of hygiene and public health may be easily and fully found. That the consideration of English modes of dealing with the problems discussed stands in the foreground is, to the American reader, a great and instructive advantage. It is to be hoped that a similar rendition of the views of German hygienic science may be made as easily accessible.

DIFFERENTIAL DIAGNOSIS AND TREATMENT OF DISEASE. By Augustus Caillé, M. D. D. Appleton & Co., 1906, New York and London.

The practitioner who desires the entire compass of internal and special diagnosis and treatment compressed into the compass of one not too bulky volume will find this a useful book. The descriptions are clear and concise and the illustrations numerous and generally excellent. The very nature of the task which the writer has set himself necessitates, however, much omission and frequent incompleteness in discussion.

PHARMACOLOGY AND THERAPEUTICS. By Reynold Webb Wilcox, A. M., M. D., LL. D. Sixth Edition. P. Blakiston's Son & Co., 1905, Philadelphia.

A revision of White and Wilcox's *Materia Medica and Therapeutics*, bringing it into harmony with the last edition of the *Pharmacopoea*. It is a companion volume to *Materia Medica and Pharmacy* by the same author.

MATERIA MEDICA, PHARMACY AND THERAPEUTICS. By Sam'l O. L. Potter, A. M., M. D., M. R. C. P. Tenth Edition. P. Blakiston's Son & Co., 1906, Philadelphia.

The tenth edition of Dr. Potter's book continues the traditions of its predecessors. It is a mine of readily accessible information, especially in *materia medica* and *pharmacy*. The therapeutic portion is of less value, but may doubtless occasionally also be found useful.

CHIRURGIE OTO-RHINO-LARYNGOLOGIQUE. (Oreille, viz., Sinus de la Face Pharynx-Larynx Trachei.) Par Georges Laurens, Ancien Assistant d. Oto-Rhino-Laryngologie des Hospitaux de Paris. Avec 470 figures dans le text. Paris: G. Steinheil, Editeur, 2 Rue Casimir Delagvigne 2. 1906.

No better evidence has been offered of the wonderful strides that have been made in the surgery of the upper respiratory tract than are given in this publication. It has not been many years since the surgery of the ear was confined to a few operations on the drum membrane and the trephining of the mastoid. The removal of nasal polypi and adenoids was as far as the rhinologist dared to venture. The removal of a growth from the vocal cord was considered an extraordinary performance. Today the surgery of the ear has been extended to the brain and its meninges, while the rhinologist has invaded the accessory sinuses and the laryngologist does not hesitate to invade, not only the trachea, but the bronchi. The number of operative procedures have increased to such an extent that Laurens has devoted almost a thousand pages to a discussion of the classical ones alone. In this work the author has

very systematically taken up the minor and major operations on the ear, nose and throat. The different methods are briefly but clearly described in each instance. The technic with the indications and contraindications are carefully gone into. The results and accidents are also described at length. The chapter on the otitic brain complications is clear and profusely illustrated. The chapter on accessory sinus disease also merits special consideration. In addition, all the modern method of examination requiring special technic, such as tracheoscopy and bronchoscopy, are carefully considered, making this an up-to-date work on surgery of the ear, nose and throat.

PATHOGENIC MICRO-ORGANISMS INCLUDING BACTERIA AND PROTOZOA. A Practical Manual for Students, Physicians, and Health-Officers. By William Hallock Park, assisted by Anna W. Williams. 1905. Lea Bros. & Co., New York and Philadelphia.

The second edition of Park's Manual is, as it were, a new book. The enclosing in its scope of the protozoal infectious diseases was a very necessary factor, in view of the inaccessibility of literature on this branch of parasitology for ready information. It is unnecessary to go into details about the single items dealt with. From a man like the author, with his unlimited experience, it is *a priori* certain that only the best and most reliable information is given. While for physicians and health-officers the book will be an inexhaustible source of interest and advantage, it appears to the reviewer that its level is beyond that of the ordinary student. Abbott and McFarland will be better for him. To the initiated reader the manual is particularly interesting, as in it in many places the personality of the author stands in the foreground; not too much, though, to interfere with the uniformity of the manner of demonstration. Park's book, in its second edition, will be well received; it is a relief after the dozens of books before us, one the picture of the other. Park's book is original; his wide experience has written it.

TEXT-BOOK OF MATERIA MEDICA FOR NURSES. Compiled by Lavinia L. Dock. Fourth edition. G. P. Putnam's Sons, New York and London. 1905.

This little book is well suited to the needs of nurses. All the most important drugs, synthetic as well as natural, are briefly described and their actions indicated. The new edition has been thoroughly revised by Miss Bean, of the Johns Hopkins Training School for Nurses, to meet the changes in the new Pharmacopoeia, and includes most of the newer remedies.

GRAY'S ANATOMY: DESCRIPTIVE AND SURGICAL. A Text-book of Human Anatomy. By Henry Gray, F. R. S., Lecturer on Anatomy at St. George's Hospital, London. New American, from 15th English Edition; freely revised and largely rewritten by J. Chalmers Da Costa, M. D., professor of surgery in Jefferson Medical College, Philadelphia, with the collaboration of a corps of specially trained assistants; in one magnificent imperial octavo volume of 1600 pages, with 1132 illustrations, in black and colors. Price with illustrations in black and colors: cloth \$6.00 net; full leather \$7.00 net. Price with illustrations in black: cloth, \$5.50 net; full leather \$6.50 net. Lea Brothers & Co., Publishers, Philadelphia and New York.

Henry Gray, the author of this work in its beginning, died young, leaving, however, a great masterpiece on human structure, which has served as the nucleus around which has been gathered all the knowledge that progress in anatomical study has produced. That the book has passed through fifteen editions is a significant fact. The volume here under consideration is a revision of the 15th English edition. Dr. Da Costa who combines in rare degree the qualifications of anatomist, surgeon and teacher, has made this revision in a thorough, searching and critical manner. This will be especially noted in the sections on the brain, spinal-cord, nervous system, abdominal viscera and lym-

phatics. Also the new nomenclature is given in brackets, following the current nomenclature, which serves the needs of a far greater number of readers than if one system only were used. The illustrations are in the main the same as have been seen in the various editions of Gray's Anatomy. Particular attention should be called to the anatomy of the lymphatic system, as it is here given in a more instructive and complete manner than in any other text-book on anatomy.

AMERICAN EDITION OF NOTHNAGEL'S PRACTICE. Diseases of the Blood. By Prof. Dr. P. Ehrlich, Prof. K. von Noorden, Dr. A. Lazarus and Dr. F. Pinkus. Edited with additions by Alfred Stengel, M. D. W. B. Saunders & Co., Philadelphia and London. 1905.

The work of Ehrlich and von Noorden, as well as that of Lazarus and Pinkus, upon the blood is too well known to require commendation here. This volume, which they have fathered, includes the normal and pathologic histology of the blood, anemia, chlorosis, leukæmia, chloroma, pseudoleukæmia, etc. These conditions are treated so exhaustively, and the theories discussed so carefully, that the work will doubtless "remain the last word on the subject for many years."

Prof. Ehrlich contributes the chapter on "Histology of the Blood, Normal and Pathologic;" Dr. Lazarus on "Clinical Features of Anemia and Myeloid Leukæmia;" Prof. von Noorden on "Chlorosis," and Dr. Pinkus on "Leukæmia." Some idea of the completeness of the work may be conveyed by the statement that it includes some seven hundred pages concisely and succinctly written. The literature has been so carefully collected that no link in the chain of development of our knowledge of the blood and its diseases has been omitted.

A TEXT-BOOK OF PHYSIOLOGY FOR MEDICAL STUDENTS AND PHYSICIANS. By William H. Howell, Ph. D., M. D., LL. D. W. B. Saunders & Co., Philadelphia and London. 1905.

As the title indicates, the volume is primarily intended for the use of medical students. For this purpose it is excellently fitted and deserves high praise. Physiologic facts and theories are set forth with admirable simplicity and clearness, and in a lucid style that cannot but hold the attention of the learner. From the bewildering number of researches, the writer has selected those of prime importance, passing by others which, though interesting and significant, might confuse the student or divert his attention from the fundamental principles which he is endeavoring to grasp. This very quality, admirable in a medical school text-book, limits its usefulness in other directions. For the weighing of recent conflicting testimony on some mooted point, the physician with physiologic interests will still have to turn to the German text-books. In the English language, Prof. Howell's book is now the best physiology obtainable.

A TEXT-BOOK OF PHYSIOLOGICAL CHEMISTRY FOR STUDENTS OF MEDICINE AND PHYSICIANS. By Charles E. Simon, M. D. Second edition, revised and enlarged. Lea Brothers & Co., Philadelphia and New York.

The author has endeavored to adapt this work "as much as possible to the wants of the medical student and the physician who, in the past, has been unable to devote the attention to the subject which it merits."

The first section of the work is devoted to a consideration of the three classes of foodstuffs and the most important products of their decomposition; the second section deals with digestion, absorption and secretion; the third section is devoted to the chemical study of the elementary tissues and the various organs of the body, the products of their activity, and their relation to physiological function. In this edition the chapters on the albumins, the products of nitrogenous katabolism, and on gastric and tryptic digestion, have been almost entirely rewritten.

A MANUAL OF PERSONAL HYGIENE. By American Authors. Edited by Walter L. Pyle, A. M., M. D. Second edition. W. B. Saunders & Co., Philadelphia, New York, London. 1904.

The object of this Manual is to set forth plainly the best means of developing and maintaining physical and mental vigor. It appeals both to medical men and to the laity; among the latter, especially to parents who are eager to have their children grow up among the best hygienic surroundings. Each of the chapters has been written by a physician of especial reputation in its field. The work is excellent of its kind.

HUMAN PHYSIOLOGY. Prepared with Special Reference to Students of Medicine. By Joseph H. Raymond, A. M., M. D., Professor of Physiology and Hygiene, Long Island College Hospital, New York City. Third edition, thoroughly revised. Octavo volume of 687 pages, containing 444 illustrations, some in colors, and four full-page lithographic plates. Philadelphia and London: W. B. Saunders & Company, 1905. Cloth, \$3.50 net.

It is evident that in revising his excellent work for the new third edition, Dr. Raymond spared no labor to bring it up to present-day knowledge. Every page shows evidence of his careful revision, and in that portion devoted to the physiology of nutrition the author has profitably availed himself of Chittenden's valuable contributions to the subject. Besides more fully elaborating many topics previously discussed in the old edition, the author has introduced a number of new subjects, among which are the "Influences of Alcoholic Fluids on the Excretion of Uric Acid," "Hemolysis" and "Bacteriolysis," and "Ovarian and Abdominal Pregnancy." Every one of the 444 figures is practical and illustrates a point which might not be clear to the student. It would be difficult to find another volume of the same size containing so much up to date and accurate information.

TUMORS, INNOCENT AND MALIGNANT—THEIR CLINICAL CHARACTERS AND APPROPRIATE TREATMENT. By J. Bland-Sutton, Surgeon to the Chelsea Hospital for Women, Assistant Surgeon to the Middlesex Hospital, London. Third edition, with 312 engravings. Chicago: W. T. Keener & Company. Price \$4.50.

In this third edition we have the latest revision of a work which has been long regarded as the leading English classic on this subject. The author still embraces the general features of the earlier well known editions, viz., the older general and special knowledge of tumors as they affect different parts of the body. This last edition includes such recent knowledge as that newly developed concerning deciduoma, etc. Primary cancer of the fallopian tube, myelomata and fibroids in their relation to pregnancy, all have detailed attention. One worthy feature of the work is an evident endeavor to correct the hitherto faulty use of scientific terms. Bland-Sutton takes the view that the causes of malignant growths, and it may be said of tumors in general, are practically unknown. Hence he wastes no time or space in discussing them. The work is divided into fifty chapters, contains 556 pages, and is profusely illustrated.

THE DETECTION OF POISONS AND STRONG DRUGS. Wilhelm Autenrieth. Translation by William H. Warren. Philadelphia: P. Blakiston & Co.

Autenrieth's book is too well known to need for this translation of its third edition renewed remarks on its value and merit. For students, physicians and pharmacists it will remain an important source of practical information. It must, however, be said that it can in no way replace our recognized works on toxicology. The translation gives in an admirable perfectness the spirit of the German original, and only insignificant changes have been made. The last chap-

ter is new, and deals with the quantitative determination of certain alkaloids and glucosides in crude drugs (including coffee, tea, etc.). As to the biologic detection of human blood, shortly described, the authors do not emphasize enough that the reaction is one for human proteids only and not specifically for human blood. The method is of secondary importance, and can give reliable results only in the hands of an experienced experimenter.

ENLARGEMENT OF THE PROSTATE. By John B. Deaver, M. D. P. Blakiston's Son and Co., 1012 Walnut St., Philadelphia. 1905.

A feature of this work is the excellent manner in which the illustrations are executed. It is an exceptionally high-class book and contains within its text all there is known about the subject. While the author does not hesitate to express his own opinions and to embody his own individuality, he yet gives much space to the experience of others, drawing largely both in illustrations and text, from the foremost workers in the field of prostatic surgery.

ANATOMY AND PHYSIOLOGY FOR NURSES. By LeRoy Lewis, M. D., Surgeon to and Lecturer on Anatomy and Physiology for Nurses at the Lewis Hospital, Bay City, Michigan. 12mo of 312 pages, with 100 illustrations. Philadelphia and London: W. B. Saunders & Company, 1905. Cloth, \$1.75 net.

Dr. Lewis has based the plan and scope of this excellent little work for nurses on the methods he employs in teaching these subjects. The text is simple and comprehensive, the illustrations well selected. For a work of its size it contains a very large amount of good information.

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ORIGINAL ARTICLES.

COMPLETE MEDIAN CERVICAL FISTULA, THYROGLOSSUS DUCT PERVIOUS FROM FORAMEN CÆCUM OF THE TONGUE TO ONE INCH BELOW HYOID BONE; BRANCHIOGENETIC AND POST-RECTAL CYSTS. *

BY H. TUHOLSKE, M. D., St. Louis.

From a number of rather rarer cases recently under my observation, I have selected three, the pathological character of which becomes intelligible only in the light of facts revealed by the study of the earliest embryonic condition of the fœtus. I may be pardoned, therefore, if, for the elucidation of the subject I touch upon some of the elementary facts so entirely familiar to every member of the society.

In the developing embryo we come across a number of passages, ducts and canals, many of which normally disappear before birth. For my purpose, I desire to mention, of these obsolete passages, the branchial clefts, the thyreo-glossus duct, and the post-anal gut, as bearing on the three cases of branchio-genetic cyst, of median cervical fistula and of post-rectal cyst. Toward the end of the first month of foetal life, we see under the frontal process, open in front and bounded on the side by four plates, the pharyngeal cavity. The upper pair of plates constitute the first branchial arch. The next three pairs of plates make up the 2nd, 3rd, and 4th branchial arches, which decrease in size from above downwards, so that their median interspaces in front are narrow above and wider lower down. Between each pair of branchial arches on each side remains a transverse groove, pocket or cleft, the branchial clefts which are obliterated during early foetal life, with the exception of the first one, from which the external auditory canal, the cavity of the tympanum and the eustachian tube are developed. The three posterior clefts usually become obliterated. A failure in this direction results in the formation of lateral congenital cervical fistulæ. Such fistulæ may be complete with an opening externally and in the pharynx, or incomplete external ones opening in the anterior lateral triangle of the neck near the anterior border of the sterno-cleido-mastoid muscle close behind the lower jaw, opposite the hyo-thyroid space or near the sterno-clavicular articulation: or they may

*Read before the St. Louis Surgical Society, February 14, 1906.

be incomplete internal fistulæ opening in the pharynx. Both the external and internal openings may become obliterated, leaving an open intermediate canal. External and internal incomplete fistulæ may later in life become complete. Modern research seems to fix the 2nd. visceral cleft as the usual source of the fistulæ. The fistulous tracts have a connective tissue basis, arranged concentrically around the tract and are lined with epithelium. An examination of the epithelium differentiates between the external and internal fistula. The external fistula is lined with squamous, the internal, with cylindrical epithelium; a complete fistula has generally cylindrical at the internal and squamous epithelium at the external opening. It has been known since the writings of Roser that certain cysts of the neck originate in the incomplete closure of branchial clefts and he



FIG. 1.—Branchiogenic Cyst.

described the branchial cyst, in which the internal and external openings were closed, the intermediate portion becoming cystic and the cystic fistula in which one end remains open. Branchial cysts develop or become apparent at or about puberty or even the 3rd. and 4th. decade of life, but are congenital, because they develop upon a matrix of congenital origin. The cyst contents are of epithelial origin and we may speak of mucous, serous and atheromatous cysts. Dermoid cysts contain the characteristic secretions of the skin and its appendages; the branchial contain the products of the epithelial cells, because their walls do not contain any hair follicles, sebaceous or sweat glands, as the branchial clefts close before these appendages are formed. Branchio-genetic cysts form but a very small proportion of the tumors broadly designated as cystic tumors

of the neck, and while it is necessary to make a differential diagnosis between them and aneurisms, hæmato-cysts, lymphangioma, cystic goitre and lymph-angiectetic cysts; it is the latter only that will present a real difficulty. In the latter the finding of endothelium instead of epithelium will decide.

Case.—Patient, age 38, merchant, of small stature, slight build, not robust but otherwise healthy, presented a prominent and large swelling on the right side of the neck, occupying completely the right anterior triangle, extending from the lower jaw to beyond the sterno-clavicular articulation and from the sterno-clido-mastoid to near the median line of the neck. The swelling was tensely elastic, fluctuating, slightly movable laterally; communicated carotid pulsation marked. Skin movable over

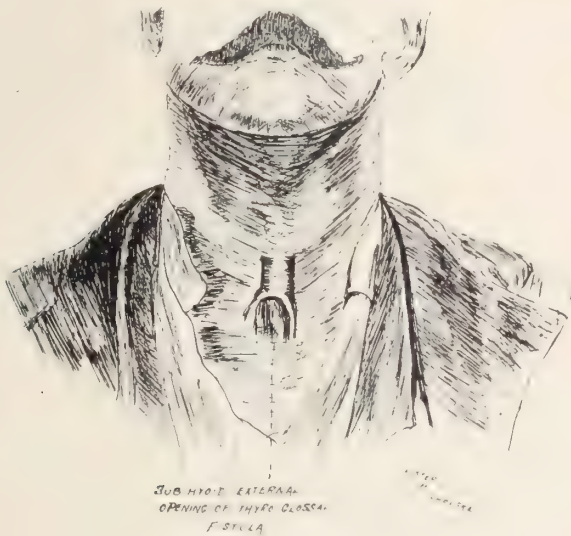


FIG. 2.—Complete Thyroglossal Fistula.

tumor, normal except at lowest point where it was red and tender on pressure. Swelling had first been observed fifteen years previously opposite the thyroid cartilage, had been growing more rapidly of late, and becoming tense and then painful; patient observed that pressure would give relief; he applied it frequently and finally noticed that on firm pressure fluid would get into the mouth and he thought the fluid was pus. Examination revealed a small opening at the lowest point of the palatopharyngeal arch through which on pressure, a pus-like fluid exuded. The accompanying photograph will fairly show the size and position of the tumor. Diagnosis,—branchio-genetic cyst or, more correctly, cystic fistula. For the relief of the condition several methods had to be considered; puncture and emptying of the sac, followed by iodine or carbolic

acid injections, incision and drainage and extirpation. Decided on extirpation. Incision over middle of tumor from opposite the hyoid bone to the sterno-clavicular articulation, exposure of lower part of cyst, puncture, escape of over a pint of thin, yellowish, fatty fluid. Enucleation succeeded well to opposite thyro-hyoid membrane; then on slightest pull upon the cyst, stoppage of respiration, this occurred again and again: posterior connection of cyst firm with large blood-vessels; amputation of cyst at upper limit of enucleation, gauze drain introduced into cyst up to pharynx, closure of external wound up to drain. During the first days there drained away a thin reddish, watery fluid, gradually decreasing; at

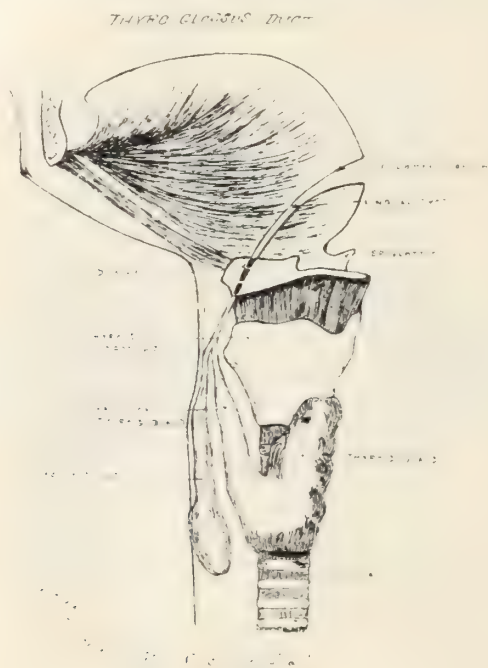


FIG. 3.

the end of the week sack had become very narrow and much shorter, drain was then removed, union was complete in another week. Patient's condition at present seems perfect, no swelling demonstrable, firm, persistent pressure brings no fluid into the mouth, gentle manipulation fails to discover the presence of fluid, opening in the pharynx closed. Prognosis as to permanent cure must remain doubtful, some small epithelial-covered patch may have escaped in spite of all care; hence there remains the possibility of a recurrence. In remembering the anatomy of the branchial fistula the operative difficulties will be apparent; the canal runs over the internal carotid, between the external and internal carotid arteries, the

internal jugular vein often displaced to the median line and the glosso-pharyngeal and hypoglossal nerves before pharyngeal opening is reached. Examination of contents by my pathologist, Dr. Newman: Fluid,—thin, turbid, mucoid, yellowish material with abundant cholesterine granules and under the microscope polymorph, leucocytes, a few lymphocytes, granular debris and fattily degenerated epithelial cells. Section of cyst-wall showed distinct connective tissue basement membrane on which were two and three rows of cuboidal epithelial cells, the layer lining cyst cavity columnar and ciliated; cyst surrounded by loose connective and fatty tissue. The microscopic finding of ciliated epithelium shows the origin of the cyst to have been of the pharyngeal end of the visceral cleft. Fluid sterile, no culture growing on any of the usual media.

Median cervical fistula.—For the explanation of the occurrence of a complete median cervical fistula the thought that failure of the union in front of the branchial arches or closure of the sinus cervicalis may be the cause, cannot be satisfying, for at most from such failure, only a shallow external fistula could result. For between the oral cavity and the external body surface rises the meso-branchial layer, a strong plate or wall out of which the epiglottis and root of the tongue develop. The careful anatomical studies on the cadaver and on the living, by Marshall, the clear presentation of the subject by Bland-Sutton and the work of His in 1891, seem to prove beyond a doubt that median cervical fistulæ owe their origin to the persistence in one or more places or along the whole length, of the thyreo-glossus duct. In early foetal life there is an epithelial connection between the cavity of the mouth and the isthmus of the thyroid gland. His maintains that the isthmus of the gland develops separately from its two lobes. The isthmus is derived from a median tubular outgrowth from the ventral epithelial wall of the pharynx; this tube growing downwards bifurcates, forms the isthmus and fuses with the lateral lobes. Originally the duct extends as far forwards as the hinder portion of the tongue, but with the growth of the body of the hyoid, it is divided into an upper lingual and lower thyroid duct. The upper open end persists and is known as the foramen cœcum of the tongue; as a rule the remainder becomes obliterated. Kœnig claims that a thyro-glossal fistula open from the foramen cœcum to the external end below the hyoid bone, has not been described. Median cervical fistulæ are never seen at birth; they are always preceded by a swelling below the hyoid bone, either breaking, or opened by the surgeon. I have a case proving the occurrence of a complete median cervical fistula. Mr. J. B., a wool merchant of the city, aged 28, noticed a swelling in the center of the neck below the hyoid bone. The swelling became tender and painful, and a physician opened it; there escaped a quantity of muco-purulent material and there remained a discharging fistula. Patient presented himself to me for treatment. A fine probe introduced passed vertically upwards under the skin to the hyoid

bone and then deviating, a short distance back of it. I disinfected the little tract, cauterized again and again, but got no result. I finally concluded to dissect it out and did so. Still no healing and a persistent mucoid discharge. Some weeks after the operation, injecting under rather strong pressure, some peroxide of hydrogen, patient exclaimed that he felt the medicine in the mouth and on examination I found the peroxide coming out of the foramen cœcum of the tongue. I frequently repeated the injection and conclusively proved that there existed a complete central cervical fistula or pervious thyro-glossal duct. The patient not being greatly troubled with it, refused to undergo the suggested operation. The patient still has the fistula or at least he had the last time I saw him three months ago, previous to a trip abroad.

The third of the obsolete foetal ducts is the post-anal gut. I shall now literally quote from Mr. Bland-Sutton.

"In the early embryo the central canal of the spinal cord and the alimentary canal are continuous around the caudal extremity of the notochord. This passage, which brings the developing cord and gut into such intimate union, is known as the neurenteric canal. When the proctodæum invaginates to form part of the cloacal chamber it meets the gut at a point some distance anterior to the spot where the neurenteric canal opens into it, hence there is for a time a segment of intestine extending behind the anus and termed in consequence the post-anal gut. Afterwards the post-anal section of the embryonic intestine disappears, leaving merely a trace of its existence in the small stricture at the tip of the coccyx, known as the coccygeal body. Post-rectal cysts owe their origin to this foetal stricture. They are comparatively rare, they may grow to a large size and fill the hollow of the sacrum. Ord reported a case of post-rectal cyst in a man, the tumor weighing 28 pounds. My case in point was that of a woman, 30 years of age, of good physique, married. The tumor in question pushed the rectum forward and bulged into the vagina and in her last pregnancy interfered with the delivery of a living child. When first seen by me, it was rather larger than a cocoanut. The operation which I performed and all the interesting details have been reported by Dr. William Deutsch, instructor in surgery in medical department, Washington University, before the Medical Society of City Hospital Alumni. The published account of it is worth perusal. I will only add that the tumor was a cyst of post-anal gut origin, it had undergone malignant degeneration, as is so much the tendency in included or heterotopic epithelial remains.

In the presentation of this short paper I have freely used the following publications:

The International Surgery.

Senn on Tumors.

v. Bergmann's System of Surgery.

McMurrich's Embryology.

Hertwig's Embryology.

Deval's Atlas on Embryology.

Bland-Sutton, "Tumors: Malignant and Benign."

THE QUOTIENT OF ENERGY AS A BASIS FOR INFANT FEEDING.

BY JOHN ZAHORSKY, M. D., St. Louis.

At the outset an apology must be made for attempting to offer a new method of infant feeding. The truth is that I do not offer such a new method, but merely call attention to a means of control which has a great value, and yet has not received the consideration which it merits.

That we need some method or rule by which the quantity of the solid food in the milk may be properly adjusted is very evident, when we consider that the prevailing rules for infant feeding, while taking account of the percentage constituents, do not, except in a very general way, control the quantity. Percentage feeding has become generally accepted as the most rational method, but in order to meet all the requirements, it is necessary to have a rule by which in any given case, the total quantity of solid food and its relation to the infantile organism may be determined. For example, let us assume that an infant fed on a milk mixture, which, on account of some peculiarity of digestion, differs very widely from the formulæ laid down by Rotch, Holt and others, how can the physician know whether the infant is getting enough food to satisfy the actual needs of life? Or, let us suppose, it must be fed on a mixed feeding, say, broth and cereals, with some milk—is there any way in which the physician may approximate the necessary amount?

True, in most healthy babies this total quantity may vary within wide limits, and it is the general custom to let the baby's appetite judge of the quantity necessary. Whenever the little one does not gain in weight, seems hungry, is constipated, these are indications that the food should be increased. But there are many infants for whom it is necessary to maintain the quantity at a minimum; others must not have the food increased above a certain limit without causing digestive disturbances.

For some time I have been using the quotient of energy (E. Q.) as a basis of infant feeding in certain difficult cases; moreover, have used it as a test, whenever the question of food quantity was under consideration, and the satisfaction derived gave rise to this article.

Several methods have been suggested for expressing the relationship of the infant to the food. One of these is the ratio between the infant's weight and the amount of milk taken in twenty-four hours, or, more exactly expressed, it was the relative amount of milk taken by each kilogram of weight. The name nutrition-quotient (Nahrquotient) has been given to the percentage relationship of the gain in weight and the total quantity of milk. These relationships are valuable only when the food is human milk. When artificial food is given some other formula must be devised.

A very happy suggestion, therefore, was made by Heubner (1900) when he proposed that the food constituents should be expressed in heat units, that is, calories. If the composition of the food is at least approximately known, the number of large calories in a given quantity may be easily calculated from the fact that 1 gram, each of proteids and sugar equals 4.1 calories and 1 gram. of fat yields 9.3 calories.

If the calories ingested in twenty-four hours are determined and the relationship to the weight of the infant is calculated, we get a number which may be utilized in making comparisons in the nutrition of the same or different infants. To this number Heubner has given the name energy-quotient. The energy-quotient is the number obtained by dividing the number of daily calories by the number of kilograms in the body-weight. It, therefore, expresses the number of calories given to each 1000 gram. of the infant's weight.

There has been much dispute as to the proper energy-quotient for the infant. In spite of all the objections brought against his figures, Heubner is probably correct in stating that the proper amount of calories for each kilo of a healthy infant is about 100 calories, many infants thrive on a much smaller quantity; often infants require more to satisfy their appetite; still 100 calories (E. Q.) may be safely regarded as a normal average.

In any method of feeding infants, it will be found expedient at times to calculate the calories in a day's feeding, and ascertain how much more or less than this standard is given. It should be remembered, however, that the energy-quotient gradually diminishes as time advances, so that the relative food value of the infant at one year is less than it was at one month.

There are several diseases in infancy, e. g., marasmus, for which it is necessary for a time to reduce the quantity of food to the lowest limit compatible with life. Again, in the feeding of certain difficult cases, while it is necessary to adjust the percentage of the food constituents it is also necessary to control the total quantity.

The conception implied by the term energy-quotient will have a decided value in that it will diminish the exclusive use of certain foods which are often believed to have a high nutritive value, e. g., albumin, water, broths, cereal decoctions, etc. On calculating the contained heat units in any of these foods, their poverty in calories is obvious.

It is generally conceded at present that marasmus (infantile atrophy) is best treated by giving the infant a minimum quantity of food. On account of the great tendency of acidosis present in these cases, the fat must be given in a low percentage, but nevertheless, the infant must receive sufficient heat units in the food to maintain life.

It has been determined that 70 calories is a minimum energy-quotient

for young infants. This is almost the least quantity that will insure a stationary weight. A few infants have been observed to gain on an alimentation represented by an energy-quotient of 55 calories. Hence, it is perfectly safe to reduce the food to 60 or 70 calories energy-quotient.

In order to apply the method in a particular case, weigh the infant. Determine then by the rules laid down by Rotch, Holt, etc., what percentage would most likely agree. Then calculate the total quantity for twenty-four hours on the basis of the energy-quotient. Let me give an example.

Case I. Infant L., female, aged five months, had been suffering from severe dyspeptic symptoms for three months, all kinds of food having been tried without success by the mother.

Examination revealed an infant in a state of severe atrophy, no diseased organ was discovered. Weight about 8 pounds (3,700 grams).

The infant was placed on a mixture made from whey, top milk (containing about 10 per cent. of fat) sugar, and a cereal decoction made from roasted flour.

The directions to the mother:

Roasted flour gruel.....	10 ounces.
Whey.....	11 ounces.
Top milk	3 ounces.
Sugar.....	5½ drams.

Give three ounces at a feeding, eight feedings in twenty-four hours.

This mixture had approximately the following composition:

Fat.....	1.25 per cent.
Proteids.....	.90 per cent.
Sugar.....	6. per cent.
Insoluble carbohydrates	1. per cent.

This, on calculation, contained in each ounce energy equivalent to 12 calories. Twenty-four ounces then would contain 288 calories, which, divided by the number of kilos in the weight of our little patient (3.7) gives an energy-quotient of 77 calories. Since 70 calories is considered a fair minimum, I could feel assured that my little patient received enough food. After a few days the infant commenced to gain in weight and the energy-quotient was gradually increased to 100 calories.

Physicians have too little appreciated the value of a minimum alimentation, although, we can scarcely agree with Keller, who makes this statement: "The physician who teaches mothers the advantages of a minimal feeding accomplishes more for the benefit of mankind than he who gives good milk for infant feeding." Still, there can be no doubt that in the treatment of various non-infective digestive disturbances the minimal feeding is the best therapeutic measure, and to feed by small quan-

tities successfully, a knowledge of the energy-quotient is indispensable. Many digestive disturbances are kept up indefinitely by giving too much food. Accurate percentage modification is really less important than adjustment of the total quantity of the solid constituents to be ingested.

I will briefly refer to two other instructive cases:

Case II. Female, age 7 months, has passed through a severe gastroenteritis during the summer. The physician in attendance placed the infant on a milk dilution made from "top milk," but the infant continued to have digestive disturbance. On calculation I ascertained that the food administered was represented by 140 calories (E. Q.) The following table gives weekly weight and the food ingested in calories approximately.

DATE	WEIGHT GRAMS	ENERGY QUOT.	WEEKLY GAIN
October 15.....	3820	145	
October 22.....	3820	140	00 gm.
October 29.....	4090	100	170 gm.
November 4.....	4204	105	114 gm.
November 11.....	4396	100	192 gm.
November 18.....	4459	110	63 gm.
November 25.....	4700	110	241 gm.

From this table it is obvious that the infant gained very little until the quantity of milk was reduced.

Case III. Infant, age 4 months, after passing through a number of digestive disturbances, weighing only 5 pounds, was found to be taking a milk dilution which contained heat units equivalent to an energy-quotient of 200 calories. No improvement was procured until the food was cut down so that it represented 100 calories (E. Q.).

These cases could be increased, but I refrain from giving long details. Let me urge, however, that the use of this standard necessitates a knowledge of the composition of the milk which is being used. Before the energy-quotient can be of any service, modern methods of percentage feeding must be mastered.

In gastroenteric infections it is good practice to limit the feeding for a short time to cereal decoctions or albumen water. But simple calculation will show that these mixtures, when no sugar is added, contain only 1 or 2 calories to the ounce, while human milk contains 21 calories to the ounce. In order to give a reasonable food value to rice-water or albumen water, sugar must be added so that the percentage of solids is about 7 per cent., when nearly 10 calories will be found in each ounce.

In the case of the premature infant, the use of the energy-quotient to control the amount of milk is by far the safest method of feeding. As I

have written at length on this subject elsewhere (*St. Louis Courier of Medicine*, March) it is unnecessary to dwell on the methods at this time.

There is, however, another condition when the energy-quotient will be found useful, and that is when an infant on an artificial food does not gain in weight and the question arises whether the infant is getting enough food. If, on calculation, it is found that the infant receives more than 100 calories to each kilo of body-weight, we must seek elsewhere than in the quantity of food as the cause of the loss in weight.

Not long ago this question was brought to me very forcibly in the case of a young infant, who could not digest any modification of cows' milk. It was finally put on an alimentation composed of whey, mutton broth, barley gruel, plasmon, and cod liver oil. The food was mixed as follows:

Whey.....	20 ounces.
Mutton broth, with barley flour.....	16 ounces.
Milk sugar	2 per cent.
Plasmon	3 drams.

Cod liver oil in 15-drop doses was given three times daily. But the baby did not gain in weight after persistent trial. It then occurred to me to test the total quantity by determining the energy-quotient. After an elaborate calculation, in which due allowance was made for the variation in the composition of the different ingredients of the food, it was found that the quotient of energy was below 80. The total quantity was increased, sugar and cod liver oil given in larger amounts, so that the food represented 110 calories E. Q. The infant commenced to gain rapidly.

Let me not be misunderstood. The weight of the infant is by no means such an infallible guide to feeding, so that a definite energy-quotient will serve for every infant. Some infants will gain rapidly on a relatively small quantity of food. Infants who are restless and very irritable need more, consequently some will require a food which is represented by more than 120 calories energy-quotient.

In conclusion, I wish to reiterate that the use of the energy-quotient as a guide in infant feeding does not replace the method of feeding by percentages, but it supplements it and makes it more perfect.

SUGGESTIONS FOR IMPROVING THE RESULTS OF SURGICAL TREATMENT IN CARCINOMA RECTI.*

BY ERNST JONAS, M. D., St. Louis.

The great hopes of the cure of cancer of the rectum by the x-ray, the Finsen light and serum treatment, have proven futile. It may be possible—perhaps not advisable—to cure a superficial carcinomatous ulcer of the skin by the x-ray, but I can safely say, that, until a universal remedy for cancer is found, all cases of cancer of the rectum will end fatally, unless removed completely by the knife. If then, this alone can cure the patient, it must be our aim to get the best possible results from the operative treatment.

Upon a thorough analysis of the present status of surgery of cancer of the rectum, it becomes evident that the desired results can be accomplished only under two conditions:

First, if a greater per cent. of the rectal cancer cases are operated on at an early stage of the disease.

Second, if the operative methods remove the entire cancerous growth, and, with it, the surrounding cancer-bearing tissue and the regional lymphatic glands.

How much may be accomplished toward bringing about the first condition may be realized, if we consider for a moment the improvement in the cure of cancer of the uterus, brought about by Winter's classical investigations and propaganda. At his instigation, medical societies called the attention of physicians and midwives to the fact, that the success of the surgical treatment of cancer of the uterus depended largely upon the early diagnosis and consequent radical surgical treatment. The characteristic symptoms of cancer of the uterus were clearly and precisely pointed out. The result of these efforts in the different parts of Germany was, that the patients presented themselves to the surgeon, or were presented by their physicians, at an earlier period of the disease (before the propaganda 33 per cent., afterward, 57 per cent., within three months after the appearance of the symptoms), and that therefore the per cent. of operable cases (out of 25,000 cases of cancer of the uterus annually) rapidly increased. May we not hope for similar methods to bring patients afflicted with cancer of the rectum to the surgeon at an earlier stage of the disease?

Hartwell says, in his paper on "Radical Treatment of Cancer of the Rectum," that, in cases reported, the average lapse of time from the appearance of symptoms which might have led to the diagnosis, until the diagnosis was actually made, was about nine months. According to Lockhart Mummery, most cases of carcinoma recti come under treatment

*Read before the St. Louis Surgical Club, March 4, 1906.

in an inoperable condition. The comprehensive statistics of Albinghaus prove that only 10 per cent. of rectal cancers are operated on radically. From this decidedly unfavorable report, it is evident that an increase in the per cent. of operable cases can be brought about, if the advantages of an early diagnosis are impressed upon the medical profession and the laity.

The reasons for this late discovery of the true condition of the patient are evident. There are some few cases of cancer of the rectum which begin so insidiously that the existence of the growth is not suspected until it has made irreparable progress. This is the case particularly, when the cancer is of the scirrhus type, found more frequently high up in the rectum. Tuttle says, clinically these tumors appear in the shape of a gradually contracting stricture of the organ. They cause no pain, very little discharge, and no hemorrhages. Gradually increasing and intractable constipation is a salient feature. Cachexia and sepsis are practically absent, and unless the tumor is transformed into some other type, the final end occurs through intestinal obstruction or rupture of the rectum above the growth. But fortunately, the large majority of rectal cancers presents a different history. These ordinary cases of cancer of the rectum do present early symptoms, but these symptoms frequently do not differ from those of many benign lesions of this organ. This very fact of similarity of symptoms should prove a blessing in disguise, if the patient can be taught that all the symptoms, which he has been in the habit of considering as the result of piles, fissures, fistula, etc., may be caused by rectal cancer—most likely in a stage of incipency, and therefore, most likely operable, with a fair chance of perfect results. Having realized this much, the patient will naturally consult a physician on whom, then, rests the responsibility of making the diagnosis by a thorough local examination.

I need not mention, that it is very reprehensible for a physician to prescribe for rectal complaints without making a thorough local examination. Although well aware that the finger is the best instrument for the examination of the rectum, if the seat of the trouble is not located too far up, I know from experience, that, in some cases, it is not sufficient to introduce the finger three or four inches into the rectum, and—if no pathological condition is made out—to exclude the rectum as the seat of the trouble. A more careful examination with a pneumatic proctoscope is necessary. And if, by these means, the cause of the condition is not discovered, we must resort to examination in narcosis, or even to an exploratory laparotomy, which latter, in case of positive findings, would serve to determine the operative possibilities of the case, and which, if the operation is decided on, would be the beginning of the first step. Only after all these means of examination have been exhausted,

have we the right not to hold the rectum responsible for the intestinal disturbances.

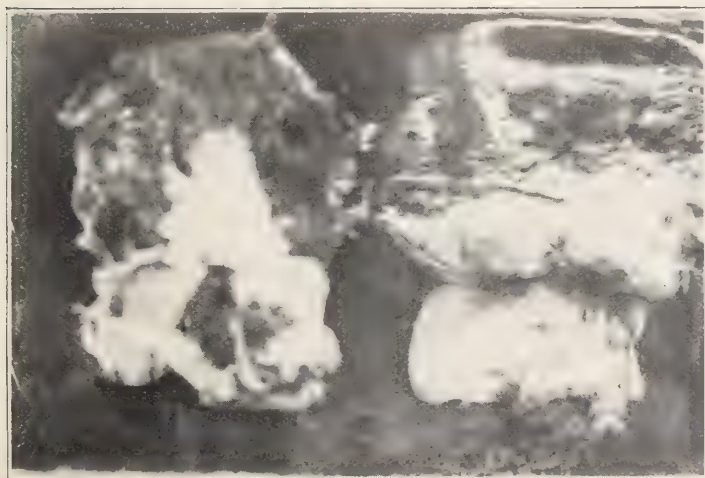
I do not intend to enter upon a lengthy discussion of carcinoma of the rectum, but there are some points that should be considered, if we would lay stress upon symptoms and conditions which may lead to an early diagnosis of rectal cancer, and so spare us the dreadful remorse caused by neglect of examination. Just as the examination of a patient is not to be considered complete without an examination of the urine, so the rectal examination should be a routine examination, not to be omitted in a single case, in which the symptoms are not otherwise absolutely accounted for, and certainly never in any case with digestive disturbances. Frequently only in this way the true cause of vague, indefinite discomforts in the region of the sacrum or about the pelvis is found; only in this way, the true cause of many a case of chronic constipation, for which the patient has usually consulted many physicians, and has been blessed with all the drugs of the German or American Pharmacopœia. No lesser man than Osler advises his pupils to examine the rectum in every case, since the examination, frequently neglected by physicians, may give valuable information. I remember a case of rectal cancer, treated by a scientific physician, upon the diagnosis of which, all the blood-examinations and stomach analyses could throw no light. The neglected rectal examination immediately established the cause of the trouble as an inoperable carcinoma recti. Experiences of this kind are sad indeed, and can be avoided only if—as I have said so often—the rectal examination is never omitted. To wait until the patient calls attention to marked rectal discomfort, usually means that the favorable time for radical operation has passed, or if resorted to, will bring no permanent result.

It is a great misfortune that the rectal carcinomata frequently give so little disturbance, and are, therefore, allowed to continue their growth. Pain is often entirely absent until the later stages, difficulty of stool, constipation varying with diarrhœa, often morning diarrhœa, are symptoms not considered sufficiently characteristic to reveal the serious condition of the patient. Muco-purulent or bloody stools are often considered as the result of dysentery, or of hemorrhoids, which latter, however, may be only an accompanying condition of rectal cancer. Or the above symptoms may, on the patient's say-so, have been accepted by the physician as caused by hemorrhoids, without further local examination. The patient again, may have only imagined the presence of hemorrhoids, since according to his notion, the above symptoms must result from hemorrhoids, with which so many of his friends, with like complaints, are afflicted. Loss of strength, emaciation, and cachexia are generally noticeable only in the late stages of rectal cancer. Only in the very latest stages, the characteristic odor is perceptible, the patient becomes septic, and abscesses attended by gangrene may form.

There is only a slightly greater frequency of rectal cancer in men than in women; there is no age limit. In literature, I find rectal cancers observed in children. One of the specimens is from a young man well on in the twenties.

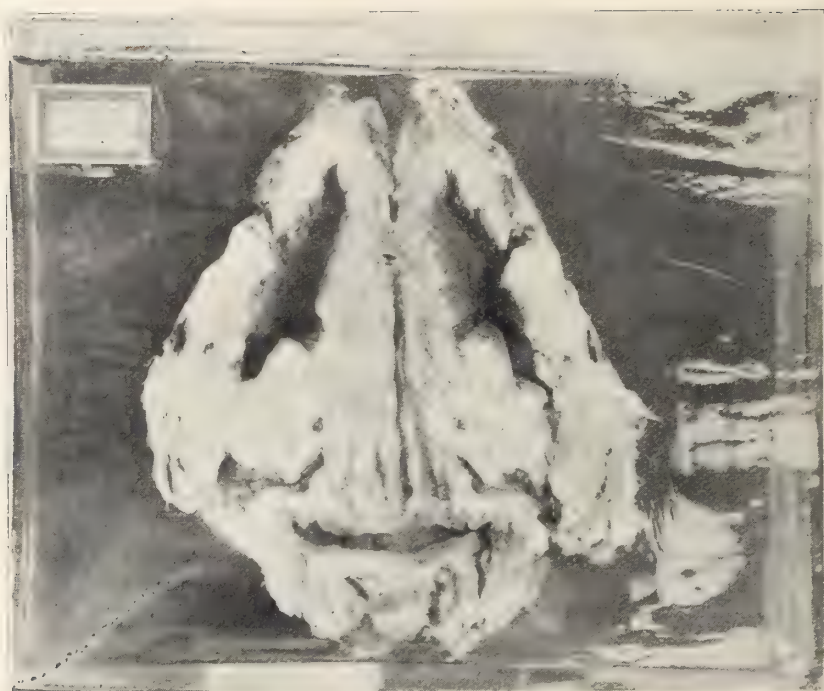


Specimen No. 1.



Specimen No. 2.

The history of the disease—not distinguishable—at least not in the early stages—from that of many benign rectal diseases, especially of ulceration or stricture of the benign variety, makes the diagnosis depend chiefly upon a physical examination, which in most cases of rectal cancer, will easily interpret the local findings.



Specimen No. 3.—Primary carcinoma of the prostate.



Microscopical drawing I.

I shall not go into the details of the pathological study of cancer of the rectum, but it may not be out of place to point out the most characteristic forms. Cancer of the rectum rarely starts at the anus. When such is the case, it originates in a fissure, fistula or irritated hemorrhoid. Cancer of the anus grows rapidly and soon infects the lymphatics, usually of the inguinal region.

In the earliest stage of the cancerous disease of the rectum, one feels a small, hard, flat induration in the mucous membrane, the surface of which is somewhat uneven. Soon an isolated ulcer will be felt, with a margin as hard as cartilage, made up of separate nodules of different size, the consistency of which is in sharp contrast to the soft surrounding mucous membrane. This infiltrated margin is one to two centimeters broad and can hardly be mistaken for the smooth, soft border of a simple granulating ulcer, due, for example, to syphilis or gonorrhœa. In the latter stage, the ulceration may extend around the whole circumference of the bowel, which will then feel like a stiff, narrow tube, with a hard, rough, irregular wall. (Specimen No. 1 reveals all the characteristics of this type. You can see not far from the anus a carcinomatous ulceration, enveloping the whole circumference of the anus. Microscopically such a tumor is an adeno-carcinoma). The gelatinoid cancers are much softer, but are also surrounded by an extensive infiltration in contradistinction to a simple ulcer. The third type, the fibroid cancer, is more difficult to diagnose. It is characterized by normal mucous membrane close up to the tumor. The uneven formation of the new growth is the only difference on palpation from the benign, contracted, smooth scar of the rectum. If such a carcinoma is situated high up in the rectum, it feels like the cervix uteri. (Specimen No. 2 is an example of this kind. The patient with this tumor, almost the size of an egg, had no pain, no hemorrhage, no discharge from the rectum. Stubborn constipation was his only complaint for several months, until complete obstruction of the bowels brought him into the hands of Dr. Johnson, who referred the case to Dr. Tuholske. Rectal examination revealed this tumor as the cause of the obstruction, making an artificial anus in the sigmoid flexure necessary, as a preliminary step to its removal.)

That benign tumors of the rectum, as papilloma, fibroma, lipoma, myoma, and mucous polyps, upon palpation and in the symptoms produced (especially if ulcerated on the surface), resemble the picture given above, is evident. The microscopical examination, alone, will then determine the diagnosis. Even the microscopical examination is no absolute proof; we might have a polypus with malignant degeneration at the base of its pedicle, the pieces removed for microscopical examination, coming from parts of the tumor, not showing malignant structure. Let me add here, that a carcinoma may develop just outside of the rectum,

from remains of embryonic structure, called post-anal gut. A tumor of this kind, starting behind the rectum, in the hollow of the sacrum, growing on to rectum and vagina, came under our observation a few years ago. The presence of the growth in the patient was discovered only, when at confinement the tumor interfered with the delivery of the child. The case and operation by Dr. Tuholske has been reported at length in the Washington University *Bulletin*.

Thus far we have considered how to make the diagnosis of cancer of the rectum at an early stage. We come now to the second condition necessary for the improvement of results by operative measures. This is, as stated before, to completely remove the cancer, including the surrounding dangerous zone, with its lymphvessels and glands.

This point brings up the question at once, how far may a cancer have progressed, to still be within the limits of a radical operation. Contra-indications for radical operations are the involvement of the bladder, the close connection of the tumor with the pelvis, and, of course, metastatic growths in other organs, most frequently in the liver. I know well that it is surgically possible to remove a large part of the bladder and implant the ureters higher up, but such extensive operations are, in my opinion, better left undone. Secondary involvement of the prostatic gland and of the seminal vessels does not absolutely contra-indicate a radical operation. They may be removed, in connection with the rectum. (A specimen of *primary* carcinoma of the prostate involving rectum and bladder, acquired at a post mortem, is comparatively rare, so I may be pardoned for presenting it—Specimen No. 3). The involvement of the lymphatics by the cancer is, however, by no means a contra-indication for radical operation. In fact, I believe, that the permanent result of operations for cancer of the rectum depends largely upon the appreciation of this point.

It may not be amiss to point out the arrangement of the ano-rectal lymphatic trunks. These vessels may be divided into three groups:

First, an inferior group, which comes from the skin of the margin of the anus and is a tributary of the superficial inguinal glands.

Second, a middle group, which comes from the region of the white line, and ends in the hypogastric glands (corresponding to the middle and inferior hemorrhoidal vessels).

Third, a superior group, which springs from the mucous membrane of the anus and rectum and terminates in the glands of the mesorectum, after traversing the pararectal glandular nodules (corresponding to the superior hemorrhoidal vessels):

These groups of lymphvessels and glands must be removed in the operation. This typical location, however, is not found in all cases. The lymphatics are sometimes found surrounding the large

vessels of the pelvis. It is remarkable, how contradictory the reports of different authors are, regarding the time of the involvement of the lymphatics. Some of them state that the lymphatics are involved only at a late stage, others say that glandular involvement exists in nearly all cases, almost from the very start. From comparison with carcinoma in other parts of the body, we must believe in the early involvement of the glands. It is with cancer of the rectum just as with cancer of the uterus. At first, after vaginal removal of the uterus, there arose great enthusiasm, since there is but a very small mortality and a great number of apparent cures. But soon great disappointment followed because of the early recurrence of the disease. Therefore, at present, the striving for more radical operations, which aim at a complete removal of the cancer, including parametrium and all regionary lymphatic vessels and glands. The scientific investigations of Winter and many others regarding better permanent results from operations for carcinoma uteri have brought about this change. Winter differentiates four kinds of recurrences:—(1). The most frequent recurrence of the cancer is in loco, appearing a short time after the operation. With reasonable certainty we may believe that the recurrence comes from carcinomatous foci not removed at the operation. (2). The recurrence from diseased lymphvessels and lymph-glands. (3). Metastatic recurrences. (4). Recurrences from inoculation during the operation.

A like change must be brought about in the radical treatment of cancer of the rectum. Only then—even if the immediate mortality from the operation should be greater—may we hope to effect a greater number of permanent cures. We must remove not only the diseased part of the rectum, far beyond the apparently diseased portion, but also the surrounding connective tissue, with all the lymphatics draining this region. This necessitates operations which are more extensive than the ones usually performed at the present time. We have to choose between the likelihood of a permanent cure, by a radical operation, and a temporary result by a more conservative operation, followed by an early recurrence of the disease. Without any doubt, the most frequent of all recurrences of rectal cancer—just as in cancer of the uterus—is the local recurrence, and the reason for it is, that the operation has not gone beyond the diseased, into the healthy tissue. In other words, we have not removed enough. Why is this?

The limits of the average rectal cancer usually seem well marked to the eye and to the palpating finger. This, however, is very deceiving, the cancerous process frequently spreading sub-mucously in continuity with the main tumor for a great distance. Cancerous isles in the mucous membrane and in the sub-mucous tissue are also found without any

connection with the primary focus. To investigate this point, at the suggestion of Professor Waldeyer and Dr. Abel, six years ago, I examined all specimens of cancer of the uterus removed by Dr. Abel. I excised pieces of vagina, at least four cm. from the microscopical limit of the cancer of the uterus and found in almost one-third of all the cases cancerous infiltration either in small lymph channels (Microscopical drawing I), or as independent little carcinomatous nests (Microscopical drawings II and III).

The three drawings made at the time from microscopical views elucidate this fact.



Microscopical drawing II.

What do we learn from all this with regard to the operative methods?

One of the salient points in all the different methods for carcinoma recti is the aim to preserve the function of the rectum by saving the external sphincter. From my own experiences and from all statistics, we know, however, that as a rule, the seat of the cancer is easily reached by digital examination; it is therefore not far from the upper border of the sphincter. Now if we take into consideration the fact, that the cancer frequently extends much further down, especially in the sub-mucosa, than the palpating finger can make out, and if, from comparison with the microscopical specimens described above, we assume the exist-

ence of similar conditions in cancer of the rectum, we must agree that, in the vast majority of cases, it is a dangerous undertaking to save the sphincter. I am fully conscious of the importance of the sphincter muscle, but I believe it is dangerous to arrange the plan of the whole operation with respect to it. Surgeons who plan a rectal operation for cancer, imbued with the paramount importance of the sphincter, are liable to save the sphincter, even if they should find, in the course of the operation,



Microscopical drawing III.

that the carcinoma reaches further down than anticipated. It is hardly necessary to add that at the proximal end of the cancer, likewise, the surgeon must proceed far beyond the diseased tissue. But not only the location of the cancer makes the saving of the sphincter in most cases a hazardous undertaking; the functional result of the preserved sphincter is usually far beneath the expectations. Comparatively few cases have good control and most cases are not much better off than those wherein

the sphincter has been sacrificed, especially if an artificial anus, made by one of the modern methods, replaces the function of the lost sphincter. The only gain is the greater probability of a recurrence. While we agree that the essential feature of the normal sphincter, reflex action, is always wanting in the artificial anus, the annoyance of the artificial anus to the patient is usually not so very great. A short time after the operation, the bowel evacuates its contents with considerable regularity, especially if the patient maintains a careful diet. Nothing comes from the anus then between movements, which occur once or twice a day. If the patient washes out his bowel in the morning, he can attend to his duties all day without discomfort. Our patients have never complained much in this regard. An apparatus somewhat like a truss, removed only for defecation, makes the patient still more comfortable.

Another point of great prominence in all surgical operations is the question of establishing an artificial anus a short while before the operation for radical removal of the cancer is undertaken. It is, I think, the merit of Schlange to have called the attention of surgeons to this point. Aware of the fact that 60 per cent. to 70 per cent. of all cases operated on radically formerly died of sepsis, Schlange suggested making an artificial iliac anus about two weeks before the operation. The distal end was then to be used for rectal irrigation. In this way the chance of primary union in resection of part of the rectum became much greater. Most surgeons now believe in the preliminary establishment of an artificial anus, if resection of the rectum is resorted to. In amputation of the rectum, that is removal of the peripheral end including the sphincter, Schlange himself and most surgeons avoid the artificial anus. I consider it of great importance in *all cases* to establish an artificial anus in the left inguinal region, at least two weeks before the radical operation. By artificial anus, I always mean a real anus, that is the formation of a complete colostomy and not of a fecal fistula. The latter does not accomplish its main purpose, the complete deflection of the fecal current.

There are four great advantages in making a complete colostomy about two weeks before the operation. (1). The incision permits a thorough exploration of the pelvis and reveals the extent and mobility of the growth and the condition of the lymphatics. (2). The general health of the patient, usually suffering from auto-intoxication and sepsis, is improved. (3). The terminal portion of the gut, if left open, can be cleansed by irrigation. (4). The soiling of the site of the operation by fecal discharge is prevented and a much better chance of primary union is gained, in case the sphincter is saved and the divided ends of the gut sutured.

Which of the methods in vogue answers our demands best?

The first step of every operation for complete removal of cancer of the rectum should be a preliminary colostomy at least two weeks before the removal of the cancer. The distal end of the bowel may best be closed and then dropped into the pelvis or, if the obstruction is complete, be sewed in the wound and kept open for cleansing purposes. It is perhaps not essential to lay great stress upon the establishment of a *functionating* artificial anus.

The second step is to remove the rectum with its surrounding tissue and all lymphatics, either by a combined abdomino-perineal, abdomino-sacral, or abdomino-vaginal operation, starting in every case from the abdomen; or to effect the removal of the rectum with surrounding tissue and all lymphatics from below, following either the vaginal, perineal or sacral route, and usually a combination of the various routes. With regard to the lymphvessels, the combined operations are the most thorough, since they afford a better chance for their removal. But since most cancers are located so, that the diseased glands lie in the hollow of the sacrum, the operation from below is permissible. The combined method, however, is preferable, since, as pointed out before, the absolute regularity of the lymphvessels and glands cannot be counted upon.

I had hoped to apply these principles in a case of primary carcinoma of the posterior wall of the vagina encroaching upon the rectum. Just a few days ago, the patient was sent to the hospital, to undergo, if possible, a radical operation consisting of the following steps: first, primary colostomy; second, removal of the whole vagina, uterus, and rectum from below. However, a thorough examination regarding the extent of the disease and closer observation of the patient's condition absolutely forbade such an extensive operation—though the relatives asked us to risk any operation offering the ghost of a chance. There was not even this. In a more favorable case of this kind, the above intended procedure should be carried out. The close anatomical connection between the posterior wall of the vagina and the rectum and the fact, that the lymphvessels from the posterior wall of the vagina encircle the rectum and run toward the sacral hollow, force us to such a radical procedure. The total removal of the vagina for carcinoma necessitates the removal of the uterus, on account of the danger of hæmato- or pyo-metra.

That the anus should be removed in all cases of rectal cancer, except very few, where the cancer is located high up in the rectum, has been pointed out before. In these rarer cases the artificial anus must be established rather high, so as not to interfere with the pulling down of the rectum, in case the radical operation is done from below. The two ends of the rectum will then be sewed together, with a circular suture in the pelvis or, according to Hochenegg or Woelffler, in front of the

anus. Later then, we must of course cure the artificial anus. To perform the radical operation per laparatomiam in such a case means to make a resection of the rectum. Primary colostomy, with frequent washings of the rectum, makes this resection of the large intestine less dangerous. The later cure of the artificial anus completes this operation. This preliminary establishment of an artificial anus with consequent resection of the bowel and final cure of the anus should be the chosen method in all cases of cancer located higher up in the colon. I am able



Specimen No. 4 —Cancer of the splenic flexure of the colon.

to present to you a specimen of cancer of the splenic flexure of the colon transversum (Specimen No. 4). The proximal end is immensely dilated. The stenosis produced by the tumor is almost a complete obstruction. Had the case not been in a moribund state, this method of operation might have been advantageously applied.

Early diagnosis and more radical operations, therefore, must bring about the improvement in the treatment of cancer of the rectum. *Proper statistics must then show the results.* The real value of all cancer opera-

tions is revealed not by the immediate, but by the permanent results and can be properly estimated only in the light of accurate statistics. To be of scientific value, these statistics must deal with the following facts:

- (a). Primary results from the operation.
- (b). Permanent results (minimum five years without recurrence).
- (c). Per cent. of cases radically operable.
- (d). Total per cent. of cures.

I am convinced that the primary results of the more radical operations may compare unfavorably with the results of the less radical operations, but that, in the end, the number of cures from the more radical operations will greatly increase. We must of course try to have as low a mortality as possible from the operation itself. The goal towards which we must strive at all times, however, is the increase of the total number of cures. The total per cent. of cures is obtained by multiplying the per cent. of operable cases by the per cent. of permanent cures. If, for instance, an operator has 25 per cent. of cases radically operable and 50 per cent. permanent cures (five years, or more, without recurrence), the total per cent. of cures is $12\frac{1}{2}$. The operator has performed the radical operation on one quarter of all his cases and one half of these were permanently cured. Let us, by early diagnoses and radical operations, aim at better results. May accurate statistics, then, record the rapid progress.

4474 Westminster Place.

HISTORICAL.

THOMSON AND THOMSONIANISM.

BY JAMES MOORES BALL, M. D., St. Louis.

The nineteenth, known as the "wonderful century," has not been free from medical delusions. It would seem, regardless of our boasted progress, that the human mind at the present day is as easily imposed upon in medical and surgical matters as it was in the darkest period of mediævalism. The philosopher is inclined to look upon such outbreaks with equanimity; for he knows that every such movement, however ridiculous it may appear, contains some elements of good and ultimately redounds to the benefit of the human race.

In this paper I purpose describing one of those illegitimate sons of Aesculapius, who have arisen from time to time to vex the souls of the regular profession. Samuel Thomson was a remarkable man. He was a positive character. Lauded to the skies by thousands of the laity, he was condemned to perdition by the majority of the medical profession. A son of the soil, in youth almost as ignorant as the untutored savages who roamed the forests in proximity to his father's farm, this man succeeded in acquiring a certain amount of medical knowledge, gained the confidence of the public, and founded a system of medicine which has had a powerful and far-reaching influence.

Environment has much to do with character. "Had John Hunter," said Dr. Benjamin Waterhouse, for twenty-seven years Professor of Theory and Practice of Medicine in Harvard Medical School—"had John Hunter, whom I well knew, been born and bred where Samuel Thomson was, he would have been just such another man; and had Samuel Thomson been thrown into the same society and associations as John Hunter, he would, in my opinion, have been his equal, with probably a wider range of thought; but both are men of talent and originality of thought."¹

Samuel Thomson was born in Alstead, New Hampshire, February 9, 1769, of very poor parents. That country was then a wilderness; there were no roads, and marked trees served to guide the traveler. "When I was between three and four years old," says Thomson in his narrative, "my father took me out with him to work. The first business I was set to was to drive the cows to pasture, and watch the geese, with other small chores, which occupation kept me all day in the fields. I was very curious to know the names of all the herbs which I saw growing, and what they were good for; and, to satisfy my curiosity, was constantly making in-

¹Wilder: History of Medicine, p. 455. New Sharon, Maine, 1901.

quiries of the persons I happened to be with, for that purpose. All the information I thus obtained, or by my own observation, I carefully laid up in my memory, and never forgot.

"Sometime in the summer, after I was four years old, being out in the fields, in search of the cows, I discovered a plant which had a singular branch and pods, that I had never before seen, and I had the curiosity to pick some of the pods and chew them; the taste and operation produced was so remarkable that I never forgot it. I afterwards used to induce other boys to chew it, merely by way of sport, to see them vomit. I tried this herb in this way for nearly twenty years, without knowing anything



Dr. Samuel Thomson.

of its medical virtues. This plant is what I have called the Emetic Herb, and is the most important article I make use of in my practice. It is very common in most parts of this country, and may be prepared and used in almost any manner. It is a certain counter poison, having never been known to fail to counteract the effects of the most deadly poison, even when taken in large quantities for self-destruction. There is no danger to be apprehended from its use, as it is perfectly harmless in its operation, even when a large quantity has been taken; it operates as an emetic, cleanses the stomach from all improper ailment, promotes an internal heat, which is immediately felt at the extremities, and produces perspiration.

The exclusive right of using this plant for medical purposes is secured to me by patent, and my right to the discovery has never been disputed; though the doctors have done everything they could to destroy the credit of it, by false statements, representing it to be a deadly poison, and at the same time they knew to the contrary, for they have made use of it themselves for several years, and have tried to defraud me of the discovery. I feel perfectly convinced from near forty years' experience of its medical properties, that the discovery is of incalculable importance, and if properly understood by the people, will be more useful in curing the diseases incident to this climate than the drugs and medicines sold by all the apothecaries in the country."²

It is unnecessary to trace the life of this individual. While yet a mere lad he was able to cure cases which defied the skill of the local physicians. He continued to gather information from old women and herb doctors and occasionally experimented upon healthy persons. Gradually he became known as a doctor and from his success he believed himself inspired. His lack of education did not weigh heavily upon him. "I finally concluded to make use of that gift which I thought nature, or the God of nature, had implanted in me." After determining to make a business of medical practice Thomson found it necessary to formulate a system. "I took nature as my guide, and experience as my instructor; and after seriously considering every part of my subject, I came to certain conclusions concerning disease, and the whole animal economy, which more than forty years' experience has perfectly satisfied me is the only correct theory." This theory briefly is: all animal bodies are composed of four elements, earth, air, fire and water. "Earth and water constitute the solids, and air and fire, or heat, are the cause of life and motion. That cold, or lessening the power of heat, is the cause of all disease; that to restore heat to its natural state, was the only way by which health could be produced; and that, after restoring the natural heat, by clearing the system of all obstructions and causing a natural perspiration, the stomach would digest the food taken into it, by which means the whole body is nourished and invigorated, and heat or nature is enabled to hold its supremacy; that the constitutions of all mankind being essentially the same, and differing only in the different temperament of the same materials of which they are composed; it appeared clearly to my mind, that all diseases proceeded from one general cause, and might be cured by one general remedy; that a state of perfect health arises from a due

²Thomson: *New Guide to Health; or Botanic Family Physician. Containing a Complete System of Practice on a Plan Entirely New, With a Description of the Vegetables Made Use of, and Directions for Preparing and Administering Them to Cure Disease.* To which is prefixed a Narrative of the Life and Medical Discoveries of the Author. By Samuel Thomson. Duodecimo, pp. 228 and 168. Boston: J. Q. Adams, Printer, 1835.

balance or temperature of the four elements; but if this is by any means destroyed, the body is more or less disordered. And when this is the case, there is always an actual diminution or absence of the element of fire, or heat; and in proportion to this diminution or absence, the body is affected by its opposite, which is cold. And I have found that all disorders which the human family are afflicted with, however various the symptoms, and different the names by which they are called, arise directly from obstructed perspiration, which is always caused by cold, or want of heat; for if there is a natural heat, it is impossible, but that there must be a natural perspiration." Thomson further held that since metals and minerals are heavy and are obtained from the earth, their tendency is to draw those who use them downward toward the earth; whereas, vegetables growing upward, their tendency is to develop and benefit those who use them.

The therapeutics of Thomson is delightfully simple. "The first and most important consideration was to find a medicine which would establish a natural internal heat, so as to give nature its proper command." For this purpose he used *Lobelia inflata* which had been described botanically by Linnæus, but the discovery of whose medicinal virtues is claimed by our author. "To hold the heat in the stomach until the system can be cleared of obstructions" the best agent is Thomson's "No. 2," or capsicum. "My next grand object was to get something that would clear the stomach and bowels from canker" and "my preparation called No. 3 is the best for that purpose." This may be any one of several articles—bayberry, white pond lily, hemlock, marsh rosemary, sumach, witch-hazel, red raspberry, or squaw weed.

"My general plan of treatment," says Thomson, "has been in all cases of disease, to cleanse the stomach by giving No. 1, and produce as great an internal heat as I could, by giving No. 2, and when necessary, made use of steaming, in which I have always found great benefit, especially in fevers; after this I gave No. 3, to clear off the canker; and in all cases where the patients had not previously become so far reduced as to have nothing to build upon, I have been successful in restoring them to health."

Thomson's career was a variegated one. By the machinations of a "regular" physician he was indicted for murder in 1809 and was triumphantly acquitted, the chief witness against him being soon thereafter convicted of grave robbery. In 1813 Thomson obtained a patent on his "system." He wrote a book which was sold together with the right to practice the "system" in a limited area. These books were sold all over New England and in what was then the West, and the Thomsonian practice became a popular fad. The most ignorant people became physicians and practiced on the lines laid down by the New England farmer. Thom-

son traveled extensively. "Since my last edition was printed in Boston, I have been six times in and through the State of Ohio." That these books met with an extensive sale is evident. "The practice has spread rapidly in the southern and western States," wrote the author, in 1831, "which has so much alarmed the doctors that they have succeeded in getting laws passed, in almost all the States, to prevent the spread of my practice." Thomson says these laws only tended to make his system spread the faster, "like whipping fire among the leaves."

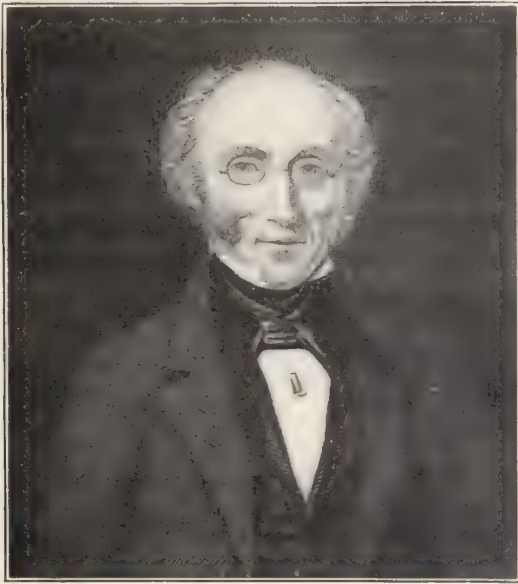
He predicts that "the dernier resort of the doctors will be to get my practice into their own hands, and under their own management, if possible. Finding that I should succeed in my Botanic practice, certain individuals of them have set up what they call a reformed college, in New York, where they have adopted my practice as far as they could obtain a knowledge of it from those who had bought the right of me and would forfeit their word and honor to give them instruction. And finding that the Botanic practice gained very fast at the West, they have established a branch of their reformed college in Worthington, Ohio."

Thomson held his followers well in hand until about 1830. Many then rejected his claims to a monopoly, broke away from him, modified or added to his practice, and called themselves followers of the botanic or botanico-medical system, and later the reform medical system. They established colleges and journals and produced considerable text-book literature. While similar to Thomsonianism, the new system was conducted in an ethical manner and the claims of proprietorship were denied. The greatest strength of the movement was in Ohio, Massachusetts, New York, Pennsylvania and Georgia. Their earliest colleges were the Botanico-Medical College of Ohio (Cincinnati), chartered in 1838, and the Southern Botanico-Medical College (Forsyth, Georgia), organized in 1839. The former became extinct in 1880; the latter was removed to Macon in 1846, and in 1854 became the Reform Medical College of Georgia. The name was changed again twenty years later to College of American Medicine and Surgery, of Atlanta, Ga. In 1884 it was merged into the present Georgia College of Eclectic Medicine and Surgery. The Botanic colleges found a resting place for the most part in eclecticism; some, however, entered the fold of Physio-medicalism.

Botanic medicine was introduced into England about 1845 by Dr. A. I. Coffin, of Manchester. His *Botanic Guide to Health* passed through numerous editions and the system found much favor among laymen. His followers were named Coffinites.

Thus the Botanic, Eclectic and Physio-Medical sects with which this country abounds can be traced to Thomson. What was the reason for his success? This question can best be answered by turning for a moment to the medical practice of the time. Everywhere doctors were bleeding or

salivating their patients. The use of mercury, the lancet, the denial of water to fever patients, were a part of accepted treatment by the regular profession. Even in yellow fever the victims were bled not once, but repeatedly. Regardless of the great discoveries in anatomy and surgery the practice of medicine remained in a frightfully low condition until long after the beginning of the nineteenth century. Although the Thomsonians vomited, purged and steamed their patients, often no doubt with fatal effect, yet their practice proved to physicians how erroneous their own methods had been. The adherents of Thomsonianism also did good by directing the attention of the regular profession to the efficacy of many



Dr. A. I. Coffin.

indigenous medicinal plants. That several medical sects should have arisen as a result of Thomsonianism is to be regretted; but there is satisfaction in the thought that many of their colleges have done good work and have compared favorably with many of the so-called regular medical schools, whose diplomas, as every unprejudiced member of our profession knows, only too often are conferred upon the undeserving.

The term Eclectic is said to have been used first in this country by the great botanist, Constantine Rafinesque, who in 1817 held the chair of botany in Transylvania University. In his *Medical Flora*, published in Philadelphia in 1828-30, he describes the doctors of the United States in terms which are not very flattering. He divides them into Rationals,

Theorists and Empirics. "The Rational medical men are liberal and modest, learned and well informed, neither intolerant nor deceitful, and ready to learn or impart information. They comprise the Improvers, Eclectics

NEW

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ADMINISTERING THEM, TO CURE DISEASE.

TO WHICH IS PREFIXED,

A NARRATIVE

OF THE

LIFE AND MEDICAL DISCOVERIES

OF THE AUTHOR.

BY SAMUEL THOMSON.

BOSTON:

Printed for the Author, and sold by his General Agent, at
the Office of the Boston Investigator.
J. Q. ADAMS, Printer.

1835.

Title-page of Thomson's Book.

and Experimentalists." He speaks of the Theorists as proud and deceitful. "They follow a peculiar theory, and mode of practice, with little direction, employing but few vegetable remedies, and enlisting under the

banner of a teacher or sect. They are divided into many sects, always at war among themselves and with their rivals, such as the Brunoists, Galenists, Mesmerians, Skeptics, Chemicalists, Calomelists, Entomists, etc."

The Eclectics of the United States date the origin of their school from 1827 when Dr. Wooster Beach, of New York, founded an infirmary from which grew the Reformed Medical College. The school at Worthington, Ohio, organized in 1832 was removed to Cincinnati and chartered in 1845 under the name Eclectic Medical Institute. It has an excellent reputation for doing good work.

The principles on which Eclecticism is based were gradually developed. Beach and his contemporaries vigorously assailed the sanguinary methods of treatment used by the regular school. They condemned the use of such drugs as mercury, arsenic and antimony and advocated the use of "safe and mild remedies," especially those of vegetable origin. They favored the use of native plants and hence became known as practitioners of the "American system." They developed the manufacture of concentrated preparations of drugs. They opposed therapeutic nihilism. They professed a broad and liberal spirit, individual liberty of opinion and the obligation to employ the best agents in the cure of disease. The doctrine of specifics, developed within the last forty years, is an article of Eclectic faith.

EDITORIAL.

POWERS OF THE STATE BOARD OF HEALTH JUDICIALLY DEFINED.

A decision of the utmost practical importance to the profession was recently handed down by the Supreme Court of the State of Missouri. It defined clearly the status of the State Board of Health and determined its powers with reference to the revocation of licenses on account of alleged "dishonorable and unprofessional conduct."

The cause, entitled *State ex rel. S. M. McAnnally vs. R. H. Goodier et al.*, was heard before the Court in Banc, Judge LeRoy B. Valliant delivering the opinion of the Court, the result of which received the unanimous concurrence of the Judges of that tribunal. Here is the first expression by an Appellate Court of Missouri defining the power of the Board of Health in the matter of revocation of licenses to practice. Heretofore, in the case of *State vs. Hathaway*, 115 Mo. 36, the Court had declared that it was a proper exercise of power for the Board, under legislative authority, to require a good moral character of the applicant as well as literary and technical attainments before a license would in the first instance issue. But, manifestly, it is a more serious and sweeping exercise of power to revoke than to refuse to issue a license. A revocation is more clearly a deprivation of property, and the constitutional provision guaranteeing to every man "due process of law" might be the more cogently invoked by him who had once been granted the right to practice than by him who was only an applicant for this privilege. The overwhelming authority in other jurisdictions had been in favor of the constitutionality of similar statutes. The Supreme Court of Missouri in the *McAnnally* case did not enter upon a detailed consideration of the constitutionality of the section of the act, but the practical effect of the decision is an acceptance of this without question, in view of the fact that the Court in specific terms sustains "the power to revoke." The matter particularly decided was that the Board of Health is not a strictly judicial body. And in view of the fact that the objection most strongly urged against the constitutionality of such acts is that they confer judicial powers upon other bodies than courts of law, a decision that here no such judicial powers were granted goes far in itself to establish the constitutionality of the act in question.

The charges against relator, *McAnnally*, filed before the Board, were in effect that for several years he had been "in the continuous and almost exclusive occupation of selling intoxicating liquors without a license and without a prescription in a drug store kept by him; that he sells liquors

to be drunk on the premises; he sells every day in the week, Sunday included, and that he sells to minors; that he conducts the business in open defiance of the law and that it constitutes a public offense."

After service of the citation on relator, he requested the Secretary of the Board to summon certain witnesses to appear and testify in relator's behalf. The Board was to sit in Kansas City and the witnesses for whom the relator desired to have subpoenas issued resided in Bollinger County. The Secretary replied that he had no authority to issue subpoenas and no funds out of which to pay witnesses for their attendance, that "so far as the action of the Board was concerned the only witnesses that would come before it would come voluntarily, and therefore relator would himself have to attend to the matter of procuring the attendance of his own witnesses." The relator prayed in his petition that a writ issue against the members of the Board prohibiting them from proceeding in the matter.

To sustain the theory of his case in thus requesting a writ of prohibition, and in making good his complaint that the issuance of subpoenas was improperly refused, relator must have established that the Board of Health was acting as a judicial tribunal. His contentions failed—the Court held that the writ of prohibition would not lie to prevent the investigation. "The State Board of Health," said Judge Valliant, "is not a court, is not a judicial tribunal; it can issue no writ, it can try no case, render no judgment; it is merely a governmental agency, exercising ministerial functions; it may investigate and satisfy itself from such sources as may be attainable as to the truth or falsity of charges of misconduct against one holding one of its certificates, but its investigation does not take on the form or character of a judicial trial. The law does not contemplate that the technical rules of evidence applicable to a judicial trial will be strictly followed or that compulsory attendance of witnesses will be made. It contemplates that a plain, honest, common sense investigation shall be made with good faith and as thorough as may be with the light of such evidence on either side as is obtainable without process and with the means at hand; much like the investigation that fair-minded, intelligent men would make in their own business concerning the alleged misconduct of one of their employes, with this difference only: that the Board cannot revoke the license except for cause and after the accused has had an opportunity to be heard."

The effect of this decision is most gratifying. It establishes a latitude of investigation in two respects—substantively, as regards the character of the offense which forms the subject of the inquiry, and to which a penalty is sought to be attached; adjectively, as regards the method of procedure to be adopted in conducting that inquiry. An act on the part of the licentiate, not necessarily an offense against the criminal law of

the state, may yet be of sufficient gravity as to amount to "dishonorable or unprofessional conduct" and thus to justify a revocation of the license to practice. The gravamen of the complaint against the practitioner is not that he may have been guilty of a crime in the line of his profession, but that he has grossly abused his professional privileges. A technical crime need not be established. It is enough to prove the essence of a crime, or, what may be less, a moral turpitude in the practice of his profession. The records of our courts tell of successive failures on the part of the State to "establish its case" because every element of the alleged crime could not be proved. Crime lurks in the dark—and especially is this true in matters professional where the offender and prosecutor are frequently the only parties who may testify as to the principal fact. The result follows that the defendant has not been proved to be guilty "beyond a reasonable doubt." This is not necessarily a weakness in the criminal law. The commission of a crime carries with it severe penalties. A proof of guilt involves the life and liberty of the citizen, and that is, indeed, a safe and salutary principle of law which throws around him every reasonable safeguard. But it is an equally wholesome principle that removes the necessity of proof of a technical offense where its commission does not carry with it anything more than a forfeiture of professional privileges.

Furthermore, the procedure in the trial before the Board, for similar reasons, need not be so formal or so technical as in a court of law. The charges are not required to have the definiteness of an indictment or information. The admission of evidence is not to be subjected to the nice and precise tests as prevail in the ordinary judicial trial. But there must be an orderly procedure—the defendant must be given an opportunity to be heard in his defense, and when so heard his license may not be revoked except for cause.

On the other hand, the decision that the Board of Health is not a judicial tribunal carries with it a single unfortunate condition. Judicial process cannot issue from the Board—witnesses cannot be forced to attend by subpoena; they may come only voluntarily. While this result operates to the disadvantage of both the Board and the defendant, it has the effect of imposing upon the complainant the duty of being active and vigilant in securing the attendance of witnesses for the purpose of proving its case. The defendant, in the fear of losing his license to practice, has a sufficient incentive to see to it that his witnesses do not fail him to the end of establishing his defense. The Board, on the other hand, being complainant in the several cases which may be presented for hearing, holding in addition the initiative in the proceedings, the burden of going forward, the duty of establishing its case, and, moreover, its members residing at points perhaps remote from the place of trial, may

find itself hampered in not being able to force attendance of its witnesses by subpoenas, but, instead, in being required to be on the alert to see at its peril that all of the witnesses in all of the cases to be heard may be on hand at the time and place of trial. In this respect the action of the St. Louis Medical Society looking to the presentation and prosecution of cases before the Board, among other things, is to be commended. The Society assumes active charge of these cases from beginning to end. It furthermore proposes to ferret out the evidence in cases where there is grave suspicion of dishonorable or unprofessional conduct, and present the same for the consideration of the Board of Health. It behooves the regular physician to be active in furnishing information of such misconduct as he may meet with in the course of his practice, thus to purge the profession of the charlatans who flourish at the expense of the unsuspecting public.

MEDICAL EXPERT TESTIMONY.

There has been much written and spoken about the necessity of improving the standing of expert medical witnesses and the quality of expert testimony before the courts of law. In matters purely medical the need of some active effort to change the present low standard is very evident. It is conceded by nearly every one who has given this subject any thought, that the ends of justice will be served best if expert testimony should be given on the question itself, and not according to the interest of one side or the other. This being so evidently a conceded point, it might be worth while to inquire into some of the factors which are working against the establishment of a system which is obviously an improvement of that in vogue at the present time.

It is apparent that if all parties involved in the question were to make a concentrated effort for the betterment of the system, it would only be a question of time before the present method would disappear. The fact is, that this effort has been always lacking and therefore the isolated attempts that have been made towards this end have failed to arouse sufficient interest to be effective. If we examine into the position taken by the lawyer in the matter of expert testimony, it will be found that he is loath to surrender the right to protect his client in any way that is legitimate within the limits of accredited legal procedure. A disputed point involving a medical question is to him no more than a matter of evidence, or of deduction from fact, and if this point can be presented from his side in a light that will influence the jury in his way, then he is standing upon a fundamental right to have it so presented. According to his way of thinking, a question involving a medical fact, or conclusion to be drawn from that fact, is open to the same sort of prejudiced interpretation than any other body of fact is, and he feels that he has the right beyond dispute to use this in any way that may help

his client. From the strictly legal point of view this position is unassailable. It is probable that no large support for the revision of expert testimony will be obtained from the body of trial lawyers.

The physician in general is either an uninterested party in this whole question, or he is prone to regard any effort made to limit the qualification of experts as an attempt to deprive the profession at large of a certain amount of legitimate court business. Legal custom has defined the position of expert within very wide limits, chiefly to the assertion on the part of the witness that he is an expert because he says he is. From the point of view of physicians, the question has two important features: the qualification of expert medical witnesses and the employment of such experts by the defendant, or by the prosecution. The remedy of one of these lies within the hands of the physician himself, namely, to refuse to qualify as an expert unless he is one. The legal matter will adjust itself after this has been settled. The attitude of the bench, especially on the question of expert medical testimony, is hard to arrive at, but there is quite a widespread feeling that the bench is little impressed by the weight of expert testimony in medical questions because so often it is seen to be prejudiced. Opinion that can be purchased, and that is what it amounts to in many cases, destroys the character of much of the testimony that is really honest. Of the three interested parties in this question the bench in all probability has the least respect for the quality of the expert medical testimony as we see it today.

It can be seen that here is reason enough for the lack of a concentrated effort to relieve the intolerable condition of affairs. Judge, lawyer and physician are all indifferent, and each from a different point of view. The whole subject needs agitation from all sides and some effort should be made to create some kind of intelligent opinion. This opinion should deal with the following fundamental propositions: That matters of scientific fact and deductions from them are not matters of prejudiced opinion and can never be; that an expert is one who has special knowledge concerning a subject which the ordinary man engaged in the same sort of work has not; that an expert medical witness should be one who not only has this requisite knowledge, but who possesses a temperament that is fair, just and capable of seeing the different phases of a question as it is presented to him; that an expert cannot represent one side or the other and cannot be employed by either side, but should serve the cause of justice as the judge and jury do, and in every case give testimony on the question itself as an abstract proposition.

If it is ever possible to obtain a sufficiently strong body of public opinion in this matter, and it is the public after all that is most vitally affected, then the three individuals involved will lead in the effort for the improvement of expert medical testimony in the courts of law.

COMMENT.

DR. C. A. SNODGRAS.

The City of St. Louis is called upon again to mourn the death of a public servant whose promise of further usefulness was cut off by his untimely end. Dr. Snodgras was a civic servant and to the performance of his citizenship his best effort was dedicated. That he was a physician, and that medicine was his profession, are of less moment than the fact that he represented the city in which he lived, in its relation to the science of hygiene, which includes, as its chiefest element, preventive medicine.

The pathos of his sudden taking off is made more acute among those who knew him well by a knowledge of the largeness of his plans and by the thought that he was allowed to complete so small a part of them.

The dominant characteristic of his official character was the deep consciousness of the responsibility of the office he was chosen to fill. A sense of aloofness from the political atmosphere commonly associated with the office of health commissioner impressed itself upon those brought into official relation with him. Even in the short tenure of his office these two traits made his position secure among those who had the best interests of the city's health at heart. He had dedicated himself to the improvement of the city's institutions for the care of the sick poor and there was a feeling of confidence in his ultimate success though the way was seen to be beset with difficulties.

In his life and work Dr. Snodgras struck the note of true immortality and that is the creation of a standard and the implantation of an ideal of public service. These will remain as a part of the office of the health commissionership when the tangible results of his short activity have long disappeared. That this city and the medical profession will never rest satisfied with a lower ideal of stewardship than he tried to establish, is the permanent contribution of Dr. Snodgras' life to the spirit of civic righteousness in St. Louis.

COMMERCIALISM, PROFESSIONALISM AND THEIR MUTUAL RELATIONS.

The editorials which appeared in the *St. Louis Medical Review* last June have been gathered together by their author, Dr. Kenneth W. Millican, into a booklet. The analysis of the meaning of the terms "commercialism" and "professionalism" is made not only so that he who runs may read, but in addition be forced into thoughtful consideration. The key-note of this analysis is the following:

Medicine is a calling, and should be animated by a spirit of true pro-

fessionalism in those who follow it as a calling. It should not be undertaken from motives of self-interest, but should be undertaken as a duty. Commercialism, on the other hand, is concerned primarily with self, and only secondarily, and not necessarily, with others. Honest commercialism does not seek to enrich itself at its neighbor's cost, but seeks to render service, for which it rightly expects to be properly and adequately compensated. The incongruity which exists between commercialism and professionalism implies no derogation to either one or the other. The methods of legitimate trade are good things in trade, but trade methods are out of place in a profession.

"The man who enters upon a profession—especially the profession of medicine—with commercial standards, is doing not only wrong to the profession, but a foolishness to himself; for the seeker after the commercial standard of success has open to him therein few prizes obtainable by honest and honorable means, and none at all comparable in magnitude to those offered by commerce, honest as well as dishonest."

The sense of vocation in medicine is, however, apt to be, and often is, hampered by the fact that he who feels with the keenest sense "the call" must, nevertheless, live by his labors. "The laborer is worthy of his hire," but *hire* does not mean gain, one implying merely adequate maintenance, the other acquisition of possessions. The man approaching most closely and literally to the highest professional idea is the country practitioner in sparsely settled districts, whose fees are at times paid in corn, poultry, fruit, or what not. This comparison suggests only a return to first principles, that is, that medicine should be practiced on a basis of service for service, not for gain and profit. A man who places before himself as an object the accumulation of possessions has a commercial aim, legitimately commercial perhaps, and therefore perfectly honorable, but nevertheless commercial, and at variance with true professionalism.

These precepts, so clearly enunciated in Dr. Millican's editorials, may seem slightly hackneyed when reduced to the skeleton form above given. We can but agree with Dr. Millican, however, that a better understanding of the meanings of the words "professional" and "commercial" should be diffused throughout the medical community. Dr. Millican's editorials have pointed out these distinctions in admirable style. Our only comment thereon is the desire to reinforce and accentuate the salient points, which are so important to our general welfare and our standing in the community as professional men. We have the hope, in indulging ourselves in this reiteration, that any professional man whose attention it may engage, may realize a revival of an old idea, altruistic, perhaps, it may be, but nevertheless one that has upheld the medical profession through the past ages, and upon the maintenance of which medicine will be saved from the slough of commercialism. This idea, or let us say ideal, is

that medicine is a *vocation* not to be entered upon from motives only of self-interest.

FIRST AID TO THE INJURED.

The advisability of instructing the laity in the principles of first aid to the injured is practically admitted in all quarters. The debatable ground is furnished by the question of what constitutes the proper tuition applicable to the non-professional, to the uneducated and to the ignorant. Between the enthusiast who advocates providing every freight and passenger crew and section gang with a complete outfit of dressings, emergency apparatus and hypodermics, and the ultra conservative who would only trust the rigidly educated with these weapons of defense and offense, there remains a broad field where tuition in first aid may yield good results.

Among all classes of employes there will be found some individuals of sufficient intelligence to grasp the essentials of asepsis and antisepsis as well as the best methods to combat shock and check hemorrhage, allay fear and handle and transport the injured. These persons should be selected and instructed by a process of personal acquaintance by the various railroad surgeons along the lines. They should also be provided with the simplest materials for carrying out the first aid work. This plan can be used also in factories and schools by local health officers.

The statistics of railroad casualties during the three months ending June 30th, 1905, as published by the Interstate Commerce Commission, certainly suggest good reasons for more universal extension of the first aid provisions and instructions adopted by a number of railroads. The number of persons killed in train accidents as reported by railroad companies of the United States during this time was 262 and of injured 2,764. Accidents of other kinds including those sustained by employes while at work and by passengers in getting on and off cars bring the total number of casualties up to 14,669, in which 886 were killed and 13,783 injured. In train accidents the number of fatalities during the quarter ending June 30th is decidedly larger than in the previous quarter, or in the corresponding quarter of last year, while for the whole year ending June 30th, there was an unprecedented total of 350 passengers killed in train accidents, besides 187 deaths of passengers from other causes. From accident to trains and other causes 10,040 passengers sustained injuries. When to these data it is added that among the employes 3,261 were killed in various ways, and 45,426 were injured, the necessity or advantage of having prompt and intelligent first aid seems to require no argument.

HISTORY OF MEDICINE.

Recognizing the interest which medical history holds for the physician, we have devoted some space in the past to this subject, and in the future we expect to make it an important feature of the *INTERSTATE*.

It will be our endeavor to present not only biographical sketches of men who contributed toward the advancement of medicine during the past centuries, but also to reproduce some of the more interesting illustrations of early medical works and events, portraits of early anatomists and half-tone reproductions of the more noted paintings which are of interest to physicians on account of the subjects presented.

MEDICAL AND SURGICAL PROGRESS.

INTERNAL MEDICINE.

IN CHARGE OF
JESSE W. MYER, M. D.

TWO POSSIBLE CAUSES OF EMACIATION NOT GENERALLY RECOGNIZED.—Cabot (*Jl. Am. Med. Assn.*, March 17, 1906) points out the fallacies in the usual routine efforts to increase and decrease weight, and states that it is not as simple as the loading and unloading of a vessel. Our state of nutrition depends upon the number, the contents and the activities of our body cells.

The chief factors in nutrition are (1) ingestion of food, in quantity and quality suited to individual needs. (2) Utilization of food, digestion, absorption, metabolism and excretion. (3) Cell growth as influenced by age, sexual factors, internal secretions, sleep and other forms of rest, exercise and other forms of activity, hereditary, individual and psychic factors. He discussed each of these factors and concludes that loss of weight is often observed as a part of the aging process in persons past middle life; that this emaciation is often associated with arteriosclerosis, possibly as a result of it, possibly as the concomitant effect of some third factor.

The rapid gain in weight often seen in growing children and in the convalescence from wasting diseases is not directly a result of abundant food and may occur even when the food supply is far below normal. The gain must be referred to an extraordinary rapid cell production due primarily to heightened growth energy in the cells themselves. Influences connected with the organs of sex may exert a controlling force on nutrition, as is strongly suggested by the changes in flesh and figure following parturition and menopause. The importance of internal secretions in the maintenance of perversion of nutrition is exemplified in the emaciation of Graves' disease, the increased weight of the myxedematous and perhaps in the more local hypertrophies of acromegaly and Paget's disease. The possibly decisive influence of insomnia on weight is suggested by the rapid emaciation sometimes occurring in cases of aneurism when sleep is prevented by pain, though appetite remains excellent.

THE PHYSICAL TREATMENT OF HABITUAL CONSTIPATION.—Tobias (*Berliner Klinische Wochenschrift*, No. 6, 1906) follows Fleiner's classification of obstipation into atonic and spastic. The two conditions are due to different etiological factors and require different treatment. While the former must be treated through a stimulating diet, hydrotherapy, with variable degrees of temperature, electricity, gymnastics and massage, the spastic cases on the other hand should have no electricity or massage, a non-irritating and non-stimulating diet, and should be treated as neurasthenics generally are treated.

THE CONSUMPTION OF THE VARIOUS SUGARS IN DIABETES.—Petitti (*Berliner Klinische Wochenschrift*, No. 6, 1906) following up the work of Orlowski, who used glucose only in his experiments, endeavored to determine the degree of consumption of the various kinds of sugar uninfluenced by the liver. In order to accomplish this the rectum was tamponed high up, and sugar solutions were introduced into the lower part of the rectum. These experiments were carried out upon diabetics as well as upon healthy individuals. The author found that sugar was absorbed as such in the rectum, without any marked degree of bacteritic decomposition taking place. It could not be said that the sugar was utilized any better per rectum than per os. At times the one was more complete, and at times the other. It is not possible to say what influences bring about the variation. In diabetics, the amount of dextrose excreted was always increased through the ingestion or injection of sugar, and this regardless of the kind of sugar used. The author is not prepared to say which sugar is best utilized by the diabetic. It seems, however, to be the milk sugar. In severe cases of diabetes neither the existing acidosis nor the amount of sugar seemed to be in any way influenced by the introduction of sugar per os or per rectum. Sugar enemata, especially the milk sugar, have a place in the diet of the diabetic.

THE DIETETIC TREATMENT OF ULCER OF THE STOMACH.—Senator (*Deutscher Medizinische Wochenschrift*, No. 3, 1906) reviews the recommendations of Lenhart, viz: that ulcer cases, even immediately after a hemorrhage, should have a strong albumen solution in order to replace as quickly as possible the blood and strength that has been lost. This was recommended in the place of exclusive rectal feeding, which had been the generally accepted treatment in cases with hemorrhage. Along the same lines the author recommends the employment of gluten, fat and sugar together with small amounts of albumen. The advantages claimed for these articles of diet are that being concentrated forms, they do not act as a weight in the stomach, nor distend the organ; they have a sedative action and do not produce hemorrhage; they counteract the surplus amount of acid present, and are easily digested and highly nutritious. Immediately after the hemorrhage he gives, every half hour, a tablespoonful of gelatin solution (20 to 200), and follows this with small quantities of cream and butter, so that in 24 hours the patient has received 30 grammes of butter and 250 cc. of cream (900 to 1000 calories). After several days the patient is given milk and eggs, and later still scraped beef. The gelatin decoction is discontinued as soon as the hemorrhage ceases so that it may be resorted to again in case of fresh hemorrhage.

INVESTIGATIONS CONCERNING GASTRIC MUCOUS.—Schutz (*Archiv. f. Verdauungskr.*, Vol. XI., No. 5) believes that too little stress is laid upon the presence of mucous in the stomach. In spite of the fact that its presence is considered pathological, and diagnostic of gastritis, but few pay heed to its presence. The chief difficulty is in demonstrating it and differentiating it from extraneous mucous. He finds that mucous

that is intimately admixed with the food is from the gastric mucous membrane and that it responds to color tests. Through the staining and microscopical examination he was able to demonstrate an abnormal amount of mucous in a very large number of cases.

THE BORDER LINE IN MEDICINE AND SURGERY.—Janeway (*Medical Record*, March 17, 1906) discusses that debatable ground known as the border line of medicine and surgery. Though asepsis enables the surgeon to do successfully much that could not be undertaken in previous years, he warns against the dangers of unfulfilled predictions and too great optimism. He points out, too, the dangers of bringing surgery into disrepute through taking surgical chance in hopeless diseases, and charging a large fee for so doing. In dealing with border line cases it is advisable to obtain as nearly as possible an accurate diagnosis before resorting to surgery; all available means should be employed in order to form a correct diagnosis. If this is not done, unnecessary operations may be performed, or having been begun may have to be repeated in another direction. In support of this statement he mentions, as examples, renal calculus and appendectomy, gall-bladder disease and appendicitis, etc.

The author discusses many questions of interest to both the surgeon and the internist in their relationship to one another. The internist in many cases must decide promptly and definitely as to the indications. As an example, he mentions the danger of hemorrhage in cases of protracted jaundice, and points out the importance of deciding early in regard to the probable need of surgical intervention. Operations upon the kidney for decapsulation have shown that the presence of albumen and casts is not a contra-indication to anæsthetics and surgical intervention. The physician has not infrequently to consider carefully whether the degree of anemia present is such that he must advise against surgical interference until an attempt has been made to bring about a better blood state. The author questions the advisability of urging patients to dubious palliation, as the production of a gastric fistula in cancer of the esophagus, or artificial anus in an inoperable cancer of the rectum not markedly obstructive. Taken as a whole, the paper simply tends to show the great importance, both to the patient and to the science of medicine, of the internist and the surgeon working together in harmony.

ENDOCARDITIS IN TUBERCULOSIS.—Sorgo and Suess (*Wiener Klinische Wochenschrift*, No. 7, 1906) report a case of endocarditis in a tubercular individual, which was shown to be of tubercular origin. There have been many cases of endocarditis reported in tuberculosis in which no specific cause could be demonstrated. In only a few cases have definite tubercular lesions been found in the endocardium. In this case there were typical tubercles with giant cells, caseation and tubercle bacilli.

PATHOLOGY AND BACTERIOLOGY.

IN CHARGE OF
CARL FISCH, M. D.

THE IDENTITY OF FUSIFORM BACILLI AND SPIRILLA.—Ruth Turncliff (*The Jour. of Infect. Diseases*, Vol. 3, No. 1.)—At the present time, Turncliff's article is of great interest with the general study of spirilla and of spirochætes going on after Schaudinn's discovery. The author succeeded in cultivating from normal throats the sword-formed or fusiform bacilli first described by Plaut and Vincent in ulcero-membranous stomatitis. Their constant presence in this condition in the company of a very delicate spirochæte have given rise to many speculations; together with the peculiar form and structure of the "bacilli," their seemingly constant combination with the spirilla led to the assumption that they were organisms different from bacteria and rather protozoic in nature, corresponding to the results of Schaudinn's work on spirochæte nocturæ. From the material examined, Turncliff obtained pure cultures of the bacillus, not of the spirilla. They grow as obligate anærobes on ascites agar and show all of the characteristics found in the original material. In studying the cultures closely, the author observed a gradual change of the bacilli into spirilla, that appear identical with the spirilla found in the mouths of the persons examined. The author's description, the transition stages, etc., are very convincing and seem to do away with the objection, that the spirilla could have been present in the culture in a stage of development not to be identified in a later stage then appearing as spirochætes. No doubt further experiments will soon be reported. A corroborative, although circumstantial evidence for the truth of the author's interpretation may be found in the constant presence in certain lesions other than angina; a number of observers studying the spirocheta pallida in syphilitic lesions have been surprised to always find fusiform bacilli whenever the spirocheta refringens, so-called, is present. The reviewer can add to this the positive findings in about 30 cases. The subject is of intense interest theoretically.

CONTRIBUTION TO THE KNOWLEDGE OF TUBERCULOSIS IN CHILDREN.—(*Jahrbuch. f. Kinderheilk.*, Vol. 62, Heft. 4.) Fr. Hamburger and Erick Sluka.—The authors attempted by a large number of autopsies on children to contribute to our knowledge of the frequency and localization of the tuberculous process at this period of life. The methods used were those of Naegeli in his extensive autopsy work. Four hundred and one autopsies were made, and in 160 of them (40 per cent.) tuberculous foci were discovered. It appeared that the frequency of tuberculous infection increased year by year; that, however, the mortality steadily decreased. All children infected during the first year of life died of tuberculosis. With the years the number of those, in which tuberculous lesions were found only as secondary phenomena, steadily increased. Of the 160 cases, where the examination resulted positive, 157 showed tuberculous changes of the bronchial glands, 57 lesions of the mesenteric glands, and 47 lesions

of the lymphatics of the neck. The author's findings do not bear out with the assumption, that the infection arises as a primary intestinal infection.

PHAGOCYTOSIS OF PATHOGENIC MICROORGANISMS IN THE TEST TUBE.—E. Loehlein (*Ann. de l'Inst. Pasteur*, Vol. 19, No. 10.)—The experiments were made in the laboratory of Metschnikoff with anthrax, cholera, coli and streptococcus organisms. The leucocytes of guinea pigs were washed several times and therefore fully freed from any amboceptor or of other substances favoring phagocytosis. The author found that under these conditions the leucocytes engulf the bacteria and destroy them by digestion. Phagocytosis, therefore, must be considered a cellular activity that asserts itself without the assistance of active substances that may be present in the fluids of the body. Those bacteria that are not destroyed by phagocytosis in the test tube (certain streptococci and forms of the coli commune) behave in the same way in the animal body. If the animal is infected intraperitoneally by them no phagocytosis occurs, or, at least, only very slowly and incomplete.

THE RELATIONS BETWEEN SPIROCHAETES AND THE ORGANS OF CHILDREN WITH CONGENITAL SYPHILIS.—Edgar Gierke (*Muench. Med. Woch.*, 1906, No. 6.)

ABOUT THE STAINING OF SPIROCHAETE PALLIDA IN SECTIONS OF TISSUE.—M. Levaditi (*Compt. Rend. de la Soc. biol.* T. 59, p. 326.)

FLAGELLA IN SPIROCHAETES. E. Zettnow (*Deutsch. Med. Woch.*, 1906, No. 10.)—Spirochæte pallida, that after being changed by its father to a spironema pallidum, now must be satisfied to go under the name of treponema pallidum, according to the rules of enthusiastic nomenclaturists, does not as yet call for such intense efforts at establishing its correct name philologically and historically. The material on hand to give definite clues as to its systematic position is very scanty and imperfect, as is the knowledge of the whole group of organisms, to which, probably, it belongs. The differentiation from spirochæte on the basis of Schaudinn's work has received a severe shock by the work of Zettnow, who succeeded, apparently, by his classic method, to demonstrate flagella in all spirochætes. An undulating membrane he could not find, just as Schaudinn could not find it in spirochæte pallida. Whether spirocheta pallida is a bacterium, as other spirilla certainly are, according to the latest publications of Koch, or a protozoan, is not certain. It must be admitted, however, that Schaudinn's work on the spirochæte noctuæ has revealed conditions that certainly call for the attempt to look for them in organisms microscopically so very similar to them. The classification of spirochætes and related forms may lead to a revolution in our views on the position of bacteria and other microbes. So far very little is known, and nothing positive. It is perfectly permissible to talk about Schaudinn's organism as spirochæte pallida. A characteristic phenomenon is the subsidence at the present time of publications on the finding of the microbe in syphilis. The consensus of opinion today is that it is found in every primary and secondary process. Any new attempt to increase the endless series

of positive results already published, will not aid in bringing the subject further to interpretation. Castellani's beautiful work on a spirochæte, almost identical with Schaudinn's form and exclusively found in lesions nearly identical with syphilis, in frambæsia, has shown finally, that no chance can obtain in the presence of these organisms always only in such lesions and nowhere else. The few reports that say they can be found elsewhere have long since been contradicted by such direct control (Kiolonoglou and v. Cube), that to cite them is only to acknowledge a superficial acquaintance with the subject. That spirochæte pallida plays the etiologic role in syphilis, is as certain as is the role that lepra bacilli play in the assumed etiology of lepra—not more, nor less. It is impossible to recall a similar specific association in any other pathologic process. This is, of course, only indirect proof, but the chances for obtaining direct evidence are as yet, as said before, very far distant. All that practically has been done is the demonstration of its constant occurrence in specific lesions, always and everywhere, and its absence everywhere else. As said, the hunting for spirochæte has become useless; we know that we will find it if we search properly, and that already it is a valuable adjuvant in diagnosis, perhaps even in therapy. The investigations made, until lately, have merely done this. As a progress are to be considered the attempts to enter into the details of the relation of the organism to the tissues that harbor it. The mechanical difficulties have for a time made futile any attempt in this line; lately this difficulty has been overcome, and we have come into possession of methods that do not rely on smears of fluid material, but demonstrate the spirochæte in the infected tissue. The first results in this way were obtained by Bertarelli, in Italy; a better method was found by Levaditi, who uses a modification of the well known Ramon y Cajal silver impregnation. The work done after this procedure is yet in its infancy. What has been done is very incomplete, yet, at least, shows that the spirochæte is not an accidental phenomenon in syphilis, but stands in very intimate relation to the diseased tissue. The way of reaction on this tissue is by no means clear yet, as shown especially by Gierke's work on congenital syphilis; the reaction must be in some manner different from other inflammatory processes caused by micro-organisms. More extensive study of the lesions of acquired syphilis will soon bridge over this gap, and may lead us to new ideas about the reactions between cell and microbe. There is no disease, the etiology and nature of which is so obscure as syphilis, an experience that has for a long time suggested an origin different from the infectious diseases so well known and interpreted. The discovery of Schaudinn has opened a field that in its extent cannot be overestimated. The combined work of biology, pathology and so-called bacteriology will solve the riddle by complete knowledge of the intimate nature of the spirochæte pallida.

DIAGNOSIS.

IN CHARGE OF

ALBERT E. TAUSSIG, M. D.

TEST FOR BILE PIGMENTS IN THE URINE.—M. P. Carles (*Jl. de Med. de Bordeaux*; ref. in *Gaz. des Hop.*, 1906, No. 27.)—There exist already more than a score of different procedures for the detection of bile pigments in the urine. The following, due to M. Grimbert, is said to be delicate and reliable.

To 10 ccm. of urine add 5 ccm. of a 10 per cent. solution of barium chloride, shake well and centrifugate or allow to stand. The precipitate contains, among other substances, bilirubinate of barium which should be redissolved by digesting the precipitate for a minute on the water-bath with 4 ccm. of alcohol, acidulated with a little hydrochloric acid. The mixture is allowed to settle and the supernatant fluid examined. There are three possibilities:

1. If the liquid is colorless, bile pigment is absent.
2. If it is of a greenish-blue or deep green color, bile pigment is present.
3. If the fluid is of a brownish color, warming it on the water-bath with two drops of hydrogen-peroxide will, in the presence of bile pigments, bring out the green color. If the latter does not appear, the brownish color will usually be due to pigments that have undergone decomposition in putrifying urine.

A HITHERTO UNREGARDED SOURCE OF ALIMENTARY PENTOSURIA.—R. v. Jakoch (*Zentralbl. f. inn. Med.*, 1906, No. 6.)—The writer calls attention to the important observation that, after the ingestion of considerable amounts of unfermented fruit juices, such as grape juice, pentoses will be found in the urine. Such a urine will give positive Trommer's or Fehling's and Nylander's tests and may easily lead to the mistaken diagnosis of glycosuria. The performance of the fermentation test will prevent this error since the pentoses are not attacked by yeast.

A CLINICAL TEST FOR FAT IN THE FAECES.—Hecht. (*Muench. Med. Wochenschr.*, 1906, No. 7.)—In many cases of intestinal disease as well as of disturbance of hepatic or pancreatic function, it is diagnostically of importance to know at least approximately how much of the fat in the food escapes absorption in the intestine. In most of the current methods the stool has first to be dried, a slow and disagreeable procedure. The following short-cut is said to give good results.

The stool is rubbed up with an alcoholic solution of green soap, whereby all of the fat is saponified. Acidify the soap solution with hydrochloric acid, filter and evaporate the filtrate, which contains the fat in the form of an alcoholic solution of fatty acids, to dryness. The sediment is dissolved in a little ether, filtered, and the ether driven off. The residue constitutes practically the entire fat of the stool in a reasonably pure condition. It may either be weighed or estimated volumetrically in an ingenious apparatus devised by the writer for a description of which the

reader is referred to the original article. Its principle is that of the acidobutyrometer used in milk analysis.

A SPHYGMOSCOPE FOR THE DETERMINATION OF PULSE PRESSURE. J. Pal (*Zentralbl. f. inn. Med.*, 1906, No. 5.)—The writer has devised an ingenious and apparently inexpensive apparatus, whereby both the systolic and diastolic blood pressure may be determined. It may be used with any of the ordinary armbands such as that of Riva Rocci, with Gaertner's tonometer, etc. In principle it consists of a horizontal capillary tube containing a drop of colored fluid. Both ends of the tube are connected with the constricting armband, but one end may be shut off by the turn of a cock. As long as both ends are connected, the fluid in the capillary tube is not disturbed, no matter what the pressure, since the latter acts equally on both surfaces of the liquid. When, however, by a turn of the cock, one end of the tube is no longer in connection with the interior of the armband, each pulse in the arm drives the fluid back and forth. That pressure at which the excursions of the liquid are greatest is the diastolic blood pressure; the highest pressure at which the liquid still makes considerable excursions is the systolic pressure; the difference between the two is the "pulse pressure." If the invention fulfills expectations it should replace Erlanger's cumbersome and expensive apparatus.

PERMANENT CULTURES FOR TYPHOID AGGLUTINATION.—De Rossi (*Zentralbl. f. Bakt.*, 1906, No. 3.)—If cultures of typhoid bacilli are kept for an hour in the water bath at a temperature of 58 to 60 degrees C. (not higher), they will retain for three months or longer an agglutinability with typhoid sera quite equal to that of fresh, living cultures.

INDIRECT PALPATION OF TUBERCULOUS BRONCHIAL GLANDS.—Neisser (*Deutsch. Arch. f. Klin. Med.*, 1906, Nos. 1 and 3.)—Neisser has investigated the sensitiveness to pressure of tuberculous bronchial glands. A stomach tube is introduced into the esophagus and the latter inflated with air. The procedure ordinarily painless becomes very painful in the presence of tuberculous glands in that neighborhood. It may occasionally be of diagnostic value. In a case, for instance, in which the general condition, perhaps with a positive tuberculin test, indicates the presence of tuberculosis but in which the seat of the trouble cannot be ascertained, a marked tenderness on esophageal inflation may point to the presence of the infection in the bronchial glands.

THE SO-CALLED FOURTH (FILATOW-DUKE'S) DISEASE.—O. Unruh (*Deutsch. Arch. f. Klin. Med.*, 1906, No. 1.)—Besides scarlatina, measles and rubella with their characteristic symptomatology there is still a fourth disease closely resembling scarlet fever, but shown to be independent of the latter by its mild course and certain peculiarities of its exanthem and its contagium. The exanthem consists of innumerable small dots that do not stand out as palpably as those of measles and rubella. These dots may be single, collected in groups or connected by an erythema, so that, especially in the face, the appearance may be that of a large irregular measles

spot. Close inspection will, however, reveal the point-like nature of the eruption. The above-mentioned erythema may simulate closely a scarlet fever exanthem, but is somewhat darker in color. It may spread rapidly over the body, nearly covering the trunk and legs, but leaving larger gaps in face and neck. After 24 to 36 hours the eruption fades and is followed by a fine desquamation that lasts one or two weeks. The appearance of the eruption is accompanied by a fever lasting a few days. The mucous membranes show a mild catarrhal condition. No sequelæ have been observed. The disease is doubtless usually diagnosed as a mild form of scarlet fever.

THERAPEUTICS.

IN CHARGE OF

WALTER BAUMGARTEN, M. D.

PHYSICAL MEASURES IN THE TREATMENT OF ACUTE ARTICULAR RHEUMATISM.—Laquer (*Berlin. Klin. Wchnschr.*, March 3, 1906.)—Reviewing the recent introduction by Winterwitz of tepid baths and packs in the treatment of acute rheumatism, the faradization of the affected joints followed by cold packs, by Drosdoff, the full hot baths by Hauße, and the production of local stasis about the joint by Bier, Laquer describes the procedure followed at the hydrotherapeutic institute at Berlin. In acute cases the joints are wrapped in one thickness of bandage which has been wrung out of cold water; this is kept cold by dropping slowly but continually cold water from a sponge or similar material. This may be applied without discomfort to the patient, and should be continued all day. At night a cold application is placed about the joint and covered with an impervious material to be removed from time to time. Some preparation of salicylic acid is given at the same time in the usual way; when the fever has disappeared the salicylic acid is discontinued, and full baths at 38 to 40 degrees, and lasting ten to twenty minutes are substituted for the cold applications. When the case is complicated with endo-carditis the temperature should be lower (37 degrees) and the duration less (not more than 15 minutes). The local treatment of the joints is effected by hot air applications, hot water, or by Bier's stasis.

The latter methods, which in principle consist of a production of hyperæmia about the affected joints, are also applicable to gonorrhœal rheumatism, and give equally favorable results.

1. DIGITALIS THERAPY.—Schwyzer (*Med. News*, Nov., 1905.)

2. THE THERAPEUTIC VALUE OF DIGALEN.—Ceconi and Fornaca (*Gazz. degli osped.*, Aug. 17, 1905.)

3. THE ACTION OF DIGALEN AND ITS THERAPEUTIC VALUE.—Livierato (*Wien. Klin. Wchnschr.*, Nos. 51 and 52, 1905.)

1. Schwyzer has used digitoxin (Cloetta) with favorable results. Given by mouth it acts more promptly than pulv. digitalis. Subcutaneously it acts in a few hours, and intravenously immediately. It has no cumulative

effect. Given subcutaneously it is accompanied by no pain. The ordinary dose is 1-3 mg. (equivalent to 0.1 g. digitalis) three times daily; in urgent cases 2-3 mg. may be given three times daily or more frequently.

2. The experience of the Turin clinic with digalen is very favorable. The dose of digalen is more easily adjusted, and the drug is well borne by the stomach. It was given intravenously, and per rectum once; in the majority of cases subcutaneously or by mouth. The dose varied from 2 to 6 cc. in a period of 18 hours. The same quantity was used subcutaneously in one or two injections.

3. According Livierato digalen produces marked reduction in the size of the dilated heart, first in its lateral diameter, then in the longitudinal diameter. Diastole is lengthened, systole is made more forcible. In short it produces a typical digitalis effect. It has the following advantages over digitalis leaves, and the various digitalins and digitoxins; it is accurately titrated, and the dose can be accurately controlled, which is quite the opposite of other digitalis preparations; it acts promptly; causes no gastric disturbances; when given subcutaneously causes no local reaction; has no cumulative effects. The dose employed subcutaneously was 3 cc.; internally 4 to 5 cc. administered in milk.

SURGERY.

IN CHARGE OF

WILLARD BARTLETT, M. D.

EXPERIMENTAL PANCREAS-NECROSIS, AND THE CAUSE OF DEATH IN ACUTE DISEASES OF THIS ORGAN.—Guleke (*Archiv. für Klin. Chir.*, Bd. 78, Heft. 4.)—This author made a number of interesting experiments, injecting the ducts of the gland, as well as ligating and plugging its nutrient blood vessels. As a result of his studies, he came to the conclusion that the hemorrhage in the gland, which resulted from these disturbances in circulation was merely an incident, rather than an immediate factor in the process. The most important thing of all is the necrosis of the pancreatic tissue, and must be considered as a casual factor of the greatest importance in the production of death. This comes about as a result of poisoning from trypsin which is formed in consequence of the decomposing of the gland tissue. He considers that the process is identical in the human to that which he demonstrated on dogs. The severity of the malady depends directly upon the amount of trypsin absorbed.

PEPTIC ULCER OF THE JEJUNUM AFTER GASTRO ENTEROSTOMY.—Gosset (*Revue de Chir.*, No. 1, 1906.)—Braun, in 1899, was the first to describe this entity, and while it is comparatively an uncommon malady, the author has succeeded in collecting thirty-one cases up to date including one of his own. In this latter observation the posterior method had been followed and after two years the jejunum was found to have perforated into the transverse colon. He re-operated with a successful result. The details of his interesting case are well shown in his illustrations. He states

that in most of the reported cases, namely twenty-seven, in which the technique was fully described, of these the anterior method was followed in fifteen, consequently most authors have been inclined to state that the method is largely at fault. However, Gosset does not think that this is a valid observation since this is about the only method used in Germany in which we have almost all of these cases described. He says it is about as likely to follow one method as it is another. The symptoms may be of two sorts. The first class of cases may give no warning, there being no mark of disease, until an acute perforation takes place. In the other cases there may be about the same class of symptoms which mark the original trouble, with the addition of infiltration of the abdominal wall.

THE SURGICAL TREATMENT OF ROUND GASTRIC ULCER IN THE CLINIC AT ZUERICH, BETWEEN 1887 AND 1904.—Kreuzer (*Beit. sur Klin. Chir.*, Bd. XLIX.)—This two hundred page article naturally contains more than can be justly dealt with in a short review. It represents the knowledge which was gained in one of the leading European clinics during a period of seventeen years, and covers a great deal of material. It seems especially worthy of note to consider what the author sums up in regard to the diagnosis. He states that the general symptoms indicative of gastric ulcer, may be given as follows: A relatively slight derangement of the general health, a good appetite, pain in a certain spot, especially after eating, of a cramping, burning nature, and often exceedingly severe. There is frequently sour belching, often vomiting of sour material shortly after taking nourishment, there may be bleeding, and there is likely to be constant pain on pressure, sharply localized. Usually there is hyperacidity and constipation.

He grants that it is, in many cases, not possible to make a definite diagnosis, although one is often aided by the chronicity of the malady. He says hemorrhage is lacking in half the cases, and that even in its absence, one must not stick to a diagnosis of chronic catarrh of the stomach when the case resists rational treatment for a long period of time. Such a one is more likely to be a gastric ulcer.

THE IMMEDIATE AND REMOTE RESULTS OF MY STOMACH OPERATIONS.—Brunner (*Beit. sur. Klin. Chir.*, Bd. XLIX.)—The point of chief importance, which is brought out in this rather lengthy article is one which goes to show that resection of the stomach is, undoubtedly, of far greater value than any other form of operation for cancer, even though a definite cure cannot be accomplished. By this is meant that a resection not only gives far greater relief for the stomach than does gastroenterostomy, but in addition to this, the tenure of life, in cases where this be desired, is vastly longer after resection than after the other operation. The average duration of the patient's life, after resection, was found by the author to be 501 days, whereas the average after gastroenterostomy was only 170 days.

RADIOGRAPH OF A FOREIGN BODY SWALLOWED AND ARRESTED IN THE UPPER RECTUM.—Mauclaire (*Bul. et Mem. de la Soc. de Chir. de Paris*, Jan. 23, 1906.)—This picture, of unusual interest, before the Paris Society,

shows an infant's play thing of oval shape, consisted of metal, about four centimeters long, lying transversely in the ampulla of the rectum of a child five years old. The foreign body lay pretty nearly in the middle line and caused the infant intense suffering. The surgeon's finger was introduced into the rectum and without great difficulty, the obstruction was removed.

THE TREATMENT OF THE STUMP OF THE DUODENUM, AFTER RESECTION OF THE STOMACH.—Kausch (*Zentral. für Chir.*, Feb. 3, 1906.)—In this article one sees the ideas of the late Professor Mikulicz expressed. The author was his son-in-law, and, until very recently, connected with the clinic.

There were 184 resections at Breslau, consequently an article which reviews them is of the greatest possible value. Most of these operations were done by the second method of Billroth, and a great many of them accompanied by peritonitis which frequently lead to the death of the patient. This complication resulted, most frequently, from the fact that the stitches in the end of the duodenum gave way and let its contents out into the abdomen. Consequently we have impressed upon us the value of a proper technique, insofar as this portion of the operation is concerned. Frequently there were circulatory disturbances in the stomach after this operation, and now and then the "vicious circle" was observed also. Gauze packing did no good so far as the stump of the duodenum was concerned. Nor does the author consider it of any value to sew this gut to the abdominal wall because the movement of the latter very likely would tear it loose.

The author is in favor of the first Billroth method in cases where this is mechanically possible, although the second must be used if the duodenum is to be divided very low down.

ORTHOPEDICS.

IN CHARGE OF

NATHANIEL ALLISON, M. D.

LITTLE'S DISEASE.—Glaessner (*Zeit. f. Orth. Chir.*, Band XIII, Heft. 4.)—The author points out the fact that this disease is far more frequent than is supposed. Twenty cases appeared at the clinic of Hoffa in one year. He makes a report of 53 cases, and divides them into three classes, following the classification advised by Hoffa, which is as follows: 1st, Little's disease proper, or so-called congenital spastic rigidity; 2d, cases where there is total rigidity, including the upper extremities, and, 3d, cases where there is general athetosis. As to the etiology, the following conditions are mentioned as influential: On the mother's side, general diseases, anomalies and diseases of the female organs; on the child's side, faulty development, anomalies, contraction formations, intra-uterine diseases and trauma. A combination of these two classes may exist. In

regard to the prognosis following treatment, the results are very favorable in most cases.

DIAGNOSIS AND PRESENT STATUS OF TREATMENT OF CONGENITAL DISLOCATION OF THE HIP.—Thienhaus (*Lancet-Clinic*, March 10, 1906.)—The author states that congenital dislocation of the hip-joint is at present curable in from 60 to 80 per cent. of all cases, provided they are treated within the time limit. The most appropriate time for treatment is between the second and the fifth year. Where patients have advanced beyond eight years untreated, they should be subjected only to a trial of reduction, when examination has shown that the shortening of the muscles, blood-vessels and nerves is not so extensive as to make serious injuries inevitable. In all cases the bloodless method of reduction should be first tried, and only after two or three attempts have been unsuccessfully made should the bloody method be resorted to. The author quotes Hoffa as follows: "Physicians must learn to make careful and accurate examination of children, when they are brought to them by parents. Perhaps it would be well to have an x-ray taken in all cases as early as possible. If diagnoses are made early, future generations will find the treatment as easy and as successful as we now find the treatment of club-foot."

RECENT SURGICAL METHODS IN THE TREATMENT OF CERTAIN FORMS OF PARALYSIS.—Tubby (*Brit. Med. Jour.*, March 3, 1906.)—This address on the surgical treatment of the different forms of paralysis was delivered before the Hunterian Society of London at its annual meeting. The forms of paralysis referred to were those arising from anterior poliomyelitis, spastic paralysis and some traumatic lesions of the nerves. The author takes up the historical side of the surgical procedures designed for the relief of these affections, giving a complete review of the work done. The modern methods of treatment discussed are, tendon and muscle transplantation, arthrodesis and nerve anastomosis. He makes a report of the following conditions treated successfully: Grafting of the extensor proprius pollicis into the tibialis anticus, and part of the extensor longus digitorum into the cuneiform bone, for paralytic equinovalgus associated with paralysis of the tibialis anticus; insertion of the iliotibial band into the patella, which was followed by complete recovery of the power of extension of the leg; grafting of the distal facial trunk for traumatic facial paralysis into the hypoglossal. A careful description is given of the technique necessary for successful anastomosis. The author states that nerve anastomosis is at present a recognized surgical procedure of value.

A NEW METHOD OF EXCISION OF THE KNEE, WITHOUT OPENING THE JOINT.—Flint (*Annals. of Surgery*, March, 1906.)—This method of resection is advised in order to obtain an operation that is quick, in which there is little danger of contamination of the wound by tuberculosis or other infection from the joint; one where hemorrhage can be reduced to a minimum; and where, when the operation is through, there is but slight danger of leaving diseased tissue behind, thereby diminishing the

probability of recurrence. The steps of the operation are as follows: A skin incision of rectangular shape is first made, the two vertical cuts being well back at the sides of the leg, extending from above the level of the upper limb of the subcrural bursa to one inch below the joint line. These two vertical incisions are connected across the front of the tibia by a transverse incision. This rectangular flap of the subcutaneous tissue is reflected upwards. The next incision is curved with concavity upward. It starts in the vastus internus, a little above the upper limit of the subcrural bursa, and is carried down and outward in the direction of the muscle fibers to the tendon of the quadriceps extensor, one-half inch above the patella; from here upwards and outwards in the direction of the fibers of the vastus externus to a point corresponding to the beginning of the inner side. The muscle with the tendon is completely divided and turned upwards, thus exposing to view the subcrural bursa. An incision is made across the front of the tibia down to the bone which is below the joint line. On the inner side the sartorius and gracilis are pushed back; on the outer side, the biceps and the perineal nerve.

The next step is to saw through the tibia as close to the joint as circumstances seem to warrant, the leg being still extended, and the soft parts protected. This saw-cut is then used as a joint, and the femur is fixed on the body and the leg on the femur. The soft parts are then quickly separated from the posterior structures of the joint. As soon as the posterior region of the condyles is exposed, the femur is sawn through from behind forward and slightly downwards, at a level sufficient to clear the cartilage behind. Thus the articular surfaces of the femur and the tibia may be removed entire, without having opened the joint. When the examination of the cut end of the bone reveals such an amount of disease left behind as to render curetting inadequate, another piece of bone should be removed. The writer unites the bones with No. 4 chromic catgut, six stitches passed directly through the bone with a curved Hagedorn needle. It is usually unnecessary to bore holes. While suturing the bones and soft parts, and during the time the plaster dressing is being applied, the leg should be carefully held in proper position by an assistant. There are of course extreme cases, either with very little tuberculous disease, or with very extensive involvement, where this operation would not be feasible.

THE MODERN TREATMENT OF FRACTURES.—Beck (*N. Y. Med. Jour.*, March 24, 1906.)—Due to the use of the Roentgen ray, our therapeutic means have not only become more simple, but also much more definite. Our methods of treatment of fractures, in fact, have been so perfected that with few exceptions we may say the treatment can be outlined with almost mathematical precision. Where there is fissure or fracture, followed by no displacement, manipulation of the injured area must be avoided and immobilization in the most comfortable position applied.

If there is any displacement, reduction must be tried at once. This can be done either under control of the fluoroscope on a translucent table, or by using the guidance of a skiagraph taken before and after. In cases where the entangling of the fragments, extensive splinter formation, or similar complications, make reposition impossible even under an anæ-

thetic, the fragments should be exposed by a scalpel and brought into apposition. Plaster of Paris dressing will sometimes insure immobilization, but if the fragments slip out easily it is safer to unite them with catgut, provided there is enough periosteum to be utilized for that purpose; otherwise it is best to keep them together with a bronze wire suture. The sooner this is done the better, because the smaller will be the changes in the soft tissues.

GENITO URINARY SURGERY

IN CHARGE OF

H. McC. JOHNSON, M. D.

CONTRIBUTION TO THE STUDY OF THE DIAGNOSIS OF TUBERCULOSIS OF THE URINARY APPARATUS.—Columbino (*Ann. des Mal. des Org. Urin.*, Jan. 15, 1906).—The difficulty at times attendant upon the diagnosis of tuberculosis of the urinary apparatus and the inefficiency of our present methods in some cases, has led the author to look for additional help in this direction. It is well known that the tubercle bacillus is quite often difficult to demonstrate in the urine, and even may be confused with other acid-resisting bacilli. Nor does inoculation of the guinea pig solve the problem, for tubercular urine will sometimes fail to infect, and, besides, the time needed for this experiment is sometimes prejudicial to the health of the patient.

By analogy with that which is observed in other liquids of the organism it is logical to think that tuberculosis of the urinary apparatus could produce a special alteration of the leucocytes in the urine.

The author has observed that if certain urines present leucocytes of an altogether normal aspect and very well colored by ordinary means, others, on the contrary, contain deformed leucocytes, having special tinctorial affinities. Thus it is that the white globules of the urinary sediment may be divided into two classes, viz: 1. Leucocytes in affections other than tubercular, in which the form is normal, contour regular, and in which they color as those in the normal blood. 2. Leucocytes in tuberculosis. It is here that their study is more interesting. They present a special, even characteristic, alteration. If a drop of the centrifugated sediment is put upon a slide and a cover-glass placed over it, it will be observed that the form of the leucocyte is most variable; elongated, polyhedral, crenated. The contour is irregular. We sometimes see at the periphery little balls of protoplasm which seem inclined to detach themselves from the leucocyte, the elements seemingly having been fractured. If we find leucocytes thus deformed, mixed with red blood cells, we can say that it is a question of tuberculosis. The presence of blood is, indeed, almost constant in tubercular urine. If now, after a good fixation, the preparation is colored by a process described by the author and examined by an immersion lens, we will observe the characteristic irregularity of the protoplasmic contour of the elements. The protoplasm of certain polynuclear corpuscles is considerably re-

duced about the nucleus. We even find nuclei almost free. Another characteristic is the occurrence of multiple vacuoles in the protoplasm. The nucleus responds less energetically to reagents. Its chromatin presents itself deeply colored in some and more pale in others.

The characteristics of the leucocytes as observed upon simple microscopic examination, without coloration, is constantly pathognomonic of tubercular disease of the urinary organs. Indeed, this examination is preferable to all others, for in coloration artifacts may appear. Nor is this change of the leucocytes altered by the condition of the urine.

Thirty-three cases in which this test proved efficient are reported.

YOUNG PROSTATICS.—Le Fur (*Le Jour. de Med. et de Chir.*, Feb. 21, 1906).—Ordinarily prostatism makes its appearance between the ages of 60 and 65 years, but quite a number have been observed by the author aged 35 to 50, and it is these that he designates "young prostatists." Prostatism expresses the condition better than prostatic hypertrophy, because in some cases the prostates are small and hard, and there is no hypertrophy.

Prostatism is inflammatory in its origin whether the ultimate result be neoplastic, hypertrophy, or atrophy. It is during the first stage that well conducted treatment may produce postponement of the danger, if not a complete cure. Even in these comparatively young men we find two distinct types of inflamed prostates, the one hard, often small, sometimes uniformly hard, but more frequently indurated in places; the other large, soft, vascular, congested.

After mentioning the usual symptoms and methods of diagnosis, the author says the variety of hard, sclerous, small prostates develop much more rapidly and offer a much worse prognosis than the large, soft, vascular variety.

In order to ameliorate or eradicate these inflammatory conditions, besides the ordinary methods, the author speaks well of high dilations of the anterior and posterior urethra by means of the Kollman-Franck instrument.

There is no doubt but that by applying logical principles of treatment we may observe a diminution in the cases of prostatism and prostatic hypertrophy, just as we have seen the number of strictures notably lessened since the introduction of rational treatment for urethritis.

NOTE UPON THE THERAPY OF THE HAEMATURIA OF PROSTATICS.—Deschamps (*Ann. des Mal. des Org. Urin.*, Nov. 1, 1905).—Antipyrine in 5 per cent. to 10 per cent. emulsion introduced into the bladder has given the author excellent results in three cases of hemorrhage from the bladder in prostatists. Antipyrine acts slower and more continuously than the douches that are ordinarily employed.

THE TREATMENT OF IMPOTENCE BY RESECTION OF THE VENA DORSALIS PENIS.—Lydston (*Internat. Jour. Surg.*, March, 1906).—The resection of the dorsal vein of the penis in the treatment of impotence is an operation requiring accurate anatomical knowledge, and cannot be done

subcutaneously without danger of injury to important parts, or total failure of the operation, the location of the vein being such that careful and painstaking dissection is necessary for its ligation and resection. Ligation of the superficial penile veins has often been performed by those who claimed they had ligated the dorsal vein proper. Resection of these veins is often essential to the complete operation, but when performed alone is futile.

Resection of the dorsal vein is beneficial in many cases on strictly psychic grounds, but this does not militate against the advisability of its performance, as the important thing for the patient is restoration of function.

In some cases of impotence of organic origin the operation is not to be thought of; but in quite a wide range of cases of this kind it is successful because of its mechanical and psychical effects. One of the important elements in the cure of impotency by properly performed operation, is demonstration of its dynamic capacity through purely mechanical circulatory agencies. The mechanical conditions thus obtained are permanent in a large proportion of cases. In cases of complete impotency which are not dependent upon irremediable local cause of functional disturbance of innervation, the operation is apparently successful in fully fifty per cent. of the cases and beneficial in probably one-half of the remainder. In the great majority of cases of impotency that come under the observation of the surgeon a trial of the operation is advisable.

CALCULUS IN THE PELVIC PORTION OF THE URETER.—Lilienthal (*Internat. Jour. Surg.*, March, 1906).—The diagnosis may be made by a careful examination with the radiograph, but in reading the plates the possible presence of other opaque bodies in the same locality, such as a calcified lymph nodule, a sesamoid bone in the internal obturator muscle, a thick lime-plate in the iliac artery and even a foreign body in the contents of the rectum, should be carefully considered. The angle of the projection of the calculus with the plane of the plate may give rise to error of localization. The cystoscope, phonophore, and wax-tipped ureteral catheter may be employed to make observation of the bladder and ureteral orifices, and to localise the calculus more exactly. Pain either at the site of the stone or in the kidney of the same side, colicky or steady, associated with blood, or blood and pus in the urine, should lead to a suspicion of calculus, the possible presence of which is not eliminated by the existence of other diseases. The condition of the other kidney should be ascertained before any operation is performed, even though nephrectomy is not contemplated. The author reports two cases of calculus in the pelvic portion of the ureter, both of which were diagnosed and localised fairly well. He considers pain or hemorrhage, or both, as indications for operation, and believes the usual abdominal incision for extra-peritoneal exposure of the ureter preferable to resection of the sacrum.

GYNECOLOGY AND OBSTETRICS.

IN CHARGE OF

HUGO EÜRENFEST, M. D.

PUBIOTOMY.—Henkel (*Zeitschr. f. Geb. u. Gyn.*, Band. 57, Heft. 1.)—In the January number of this journal an exhaustive resume has been given of the present status of the pubiotomy question. A very noteworthy new contribution to this subject is the article of Henkel in which the detailed records of seven new cases are presented. The writer describes the operation and its manifold advantages. While emphasizing the comparative simplicity of technique, he believes, however, that the operation should be performed only by the specialist, simply for the reason that only the specialist is able to define the exact indications for this extremely useful obstetric operation.

PUBIOTOMY IN A CASE OF PLACENTA PREVIA CENTRALIS WITH A CONTRACTED PELVIS.—Henkel (*Zentralbl. f. Gyn.*, 1906, No. 8.)—The operation was performed on a patient, 27 years old, IV. para, with a flat rha-chitic pelvis, the true conjugate being between seven and three quarters and eight cms. Pubiotomy was performed, next the cervix split and the child extracted. On the twenty-first day, post partum, mother and child left the hospital.

[This number of the Zentralblatt contains four other articles on pubiotomy containing the reports of twenty-one cases.]

THE HIGH MORTALITY OF PERITYPHLITIS DURING PREGNANCY.—Fueth (*Muenchn. Med. Woch.*, 1906, No. 9.)—The writer begins this article with the statement that in 1894 Munde, of New York, for the first time called the attention of obstetricians to the fact that perityphlitis is an extremely serious complication of pregnancy. Of course only cases of a severer type are recorded in literature, but it is striking that in forty-two cases collected from literature, twenty-two, i. e., more than 52 per cent., ended fatally. The causes of this apparent untoward influence of pregnancy upon appendicitis are not entirely understood. Fraenkel lays particular stress on the possibility of a stretching and eventual tearing of adhesions by the growing uterus, with the possible result of a general peritonitis. Hlawacek sees the danger in the fact that the growing uterus leads to a continuous change in the position of the diseased appendix and possibly often brings the organ into a situation in which it is kinked or its blood supply interfered with.

Fueth suggests two other causes which undoubtedly contribute to the strikingly high mortality of appendicitis during pregnancy. In not a few cases of periappendicular abscess the pus finds its way down into the pelvis and then can be easily removed through the vagina. Of course after the fourth month of pregnancy the pelvis is blocked and such a favorable development excluded. The other cause for the large mortality is the dislocation of the cecum during pregnancy high up into the abdom-

inal cavity. The appendix may in this manner be pushed up to the edge of the liver. This position beyond doubt favors the development of a general peritonitis and may account for the fact that during the fourth to the ninth month of pregnancy, out of 32 cases 19 terminated fatally, while during the second and third months of pregnancy of 10 patients but 3 died.

EXPERIENCE WITH THE EXTENDED FREUND OPERATION.—(ABDOMINAL RADICAL OPERATION FOR UTERINE CARCINOMA.)—Veit (*Berlin. Klin. Woch.*, 1906, No. 8.)—More satisfactory results can be obtained only if the radical operation will be performed more often in the earliest stages of the development of carcinoma. The resistance of the patient against operation will diminish proportionately with a reduction of the primary mortality of the operation. In Veit's opinion the three chief factors responsible for the comparatively high mortality of the abdominal radical operation are: septic infection during operation, cardiac complications during operation, especially in cachectic patients, and thrombosis and infection of venous plexuses subsequent to operation. Veit believes that he can reduce the danger of a septic infection by a preventative injection of antistreptococcic serum preceding the operation, and by a thorough curetting and disinfection with alcohol of the carcinomatous growth. He thinks the danger of a cardiac disturbance is reduced if general anesthesia be substituted by medullary anesthesia with stovaine. He finally emphasizes the advantages of a careful ligation of all vessels in the course of the operation.

PEDIATRICS.

IN CHARGE OF

ALFRED FRIEDLANDER, M. D.

CONVULSIONS IN THE COURSE OF INFLUENZA IN CHILDHOOD.—Habert (*These de Paris, Arch. de Med. des Enf.*, Feb., 1906) says that the toxin of influenza, attacks, by predilection, the central nervous system of the child. Influenzal eclampsia is therefore to be regarded as the result of intoxication. But the convulsive phenomena are ordinarily only produced in children predisposed thereto by heredity—as the result of neuropathic, arthritic or alcoholic diathesis. The prognosis is good, and recovery the rule. The convulsive crises usually appear at the height of the disease, more rarely in its incipency or at its close. Anatomic lesions are to be considered as effects rather than as causes of such convulsions. Influenzal eclampsia without being exceptional, is not at all common considering the enormous frequency of influenza and the general tendency to convulsion as the result of intoxication in childhood. The diagnosis is to be made by the coincidence of the influenzal symptoms and by the prevalence of the epidemic. The definite diagnosis cannot always be made immediately. For the treatment, in addition to the usual treatment of influenza, wet packs are highly recommended.

CONCERNING THE ORIGIN OF TUBERCULOSIS IN INFANCY.—Schlossman (*Archiv. f. Kinderh.*, Vol. 43, p. 99) in an address delivered before the German Pediatric Society, takes the stand, based upon his exhaustive experimental and pathological studies, that in early childhood the origin of tuberculosis, must be considered enterogenous rather than aerogenous, that the infection occurs through the gastroenteric tract rather than through the respiratory tract. The point of entry may be anywhere in the gastroenteric tract, from the oral to the anal orifice, and the tonsils and nasopharynx are regions of special importance.

His studies have shown that directly inherited tuberculosis must be more common than has hitherto been supposed, though there can of course be no question that for the vast majority of cases the infection must occur in extrauterine life. Although he insists upon the alimentary origin of tuberculosis in childhood, he does not believe that this infection occurs through cow's milk as has been insisted upon. Incidentally it may be noted that he denies that Behring ever took this stand himself, and maintains that a careful reading of Behring's writings on the subject will show that he has merely insisted upon the alimentary origin of the disease in the vast majority of cases in childhood, without insisting that the germs are carried in the milk itself.

Schlossman denies that alimentary origin of tuberculosis necessarily presupposes that tuberculosis of the intestinal tract must be the primary lesion. He admits that primary intestinal tuberculosis is rare in infancy, but maintains that this in no wise affects his theory, in that it appears proven that tubercle bacilli can penetrate the healthy mucosa of the gastrointestinal tract without the production of local lesion of any sort.

The bacilli pass through the intestinal canal, through the regional glands (and even in the glands local lesion is not necessarily set up), get to the thoracic duct through the lymph stream, thence into the right heart and so into the lungs. Through the lung lymph capillaries they get to the bronchial glands, which are particularly prone to tubercular infection. (Why the bronchial glands should immediately be affected when the bacilli pass through the mesenteric glands without affecting them is not explained.—Ed.)

As against the aerogenous origin of tuberculosis, Schlossman cites the fact that he never has been able to find primary lesion of the trachea, or of the larger bronchi, and that in thousands of sections, he never has been able to demonstrate the bacilli in the alveolar spaces of the lungs. If as the adherents of the inhalation theory would have us believe, it is easy for the tubercle bacillus to get directly to the lungs, one ought to be able sometimes, to demonstrate the bacilli in the alveolar spaces.

It is not possible within the space of an abstract to give all the points of the discussion, at any rate it marks a most interesting contribution to this most important subject, from one of Germany's foremost pediatricists. It may be noted that Schlossman says, that he was formerly a firm adherent of the inhalation theory, that his study of the subject has convinced him that he was formerly in error, that according to his view the weight of evidence at this time would speak most strongly for the alimentary origin of tuberculosis, in the sense that the bacilli are swallowed, getting to the respiratory tract secondarily.

METADIPHTHERITIC PLEURISY.—Deguy and Detot (*Rev. Mens. des Mal de l'Enf.*, Feb., 1906) find in a study of the subject, that pleurisy is not a very common complication of diphtheria. In 2,969 cases of diphtheria at the children's hospital in Paris, pleurisy was found clinically only eleven times. But in 85 autopsies pleural lesion was found thirteen times (15 per cent.). Their studies show that in the course of diphtheria, pleurisy of various kinds may develop: Purulent pleurisy is always due to secondary infection, usually due to the streptococcus. The modes of access in these cases are, in the order of their frequency, through the broncho pulmonary system, through the circulatory system and through the mediastinum. The serous pleurisies at times accompany a pulmonary lesion. Much more rarely, they occur independently of any such lesion. Though the actual demonstration cannot be furnished, it would appear altogether probable, that in these cases the pleurisy is due directly to the specific diphtheritic intoxication.

SPIROCHAETE PALLIDA IN HEREDITARY SYPHILIS.—Moncorvo, of Rio Janiero (*Arch. de Med. des Enf.*, Jan., 1906) has been able to demonstrate the spirochæte in two cases of hereditary syphilis. Not having any azure blue, he obtained excellent results with saffranine and dahlia violet.

The first case was that of a child 21-3 years old, who had shown manifestations since the age of two months. The child had congenital cataract, otorrhœa, eroded teeth, perianal ulcerations, and the general signs of infantilism. The organism was found in the secretions from the ulcers. In the second case, a child of three years, the parents being both syphilitic, there were perianal ulcerations and condylomata, ulcerations of the penis, mucous plaques. The spirochæte was found in great numbers. These observations are confirmatory of the findings of several other investigators, who have found the spirochæte in cases of hereditary syphilis.

NEUROLOGY.

IN CHARGE OF

SIDNEY I. SCHWAB, M. D.

THE CLINICAL HISTORY AND POSTMORTEM EXAMINATION OF FIVE CASES OF MYASTHENIA GRAVIS.—Buzzard (*Brain Winter, 1905.*)—This is a considerable addition to the knowledge we already possess of this very important disease. The object of this paper is two-fold. In the first place it will draw attention to some striking clinical phenomena occurring in this disease, and, in the second place, it will serve to propagate the view that there are constant morbid changes associated with myasthenia gravis. The clinical histories in this paper are very carefully given and afford a very definite description of the disease. The following conclusions are the result of the author's experience in this class of cases in which his material must be looked upon as being exceptional: (1) That

myasthenia gravis is a disease in which the symptoms are not always confined to the motor system, but may include others of sensory, mental or other origin. (2) That in all probability it has a definite and constant morbid anatomy constituted by the presence of widely distributed cellular and sometimes serous exudations (lymphorrhagias) in the tissue and organs of the body. (3) That slight muscle fibre changes are frequent and severe muscular atrophy rare occurrences in the disease. (4) That proliferative and degenerative changes in the thymus gland are frequently, but not constantly met with. (5) That the symptoms of the disease are best explained by assuming the presence of some toxic, possibly autotoxic, agent, which has a special influence on the protoplasmic constituent of voluntary muscle and a less specialized influence on the function of other tissues. (6) That the relation of this toxin to the incidence of lymphorrhagias and to thymic alterations is not clear.

SYMPTOMATOLOGY OF PARALYSIS AGITANS.—Mosse (*Berl. Klin. Woch.*, March 5, 1906.)—This report of a case of paralysis agitans is of interest because of the early development of rigidity in less than two years the blue discoloration of the hands and the fact that the larynx took part in the process. The discoloration of the hands is due to the high degree of arteriosclerosis existing. The patient is 52 years of age.

SYPHILIS AND DEMENTIA PARALYTICA IN BOSNIA.—Nacke (*Neurologisches Centralblatt*, No. 4, 1906.)—This is an interesting paper on an observation that has been often repeated, namely, that in certain countries where syphilis is practically endemic, dementia paralytica and tabes are very rarely found. This is especially true of Bosnia, Herzegovina and Dalmatia. The author of this paper in his travels in this region had opportunity to prove the correctness of these facts. He found that the hospitals were filled with cases of syphilis in various stages and that particularly the extra genital infection was very common. In many cases whole families were infected and in some communities it was rare to find an individual without syphilis. Comparatively little attention is paid to the careful treatment of the disease and for that reason there is an additional factor for the assumption that these two diseases of the nervous system should be frequent here. As a matter of fact there is very little tabes and as little dementia paralytica in spite of the fact that syphilis with limited or no treatment is so frequent. In the statistics of the insane asylums the percentage of dementia paralytica is very low. Among 614 cases in one institution there were only four cases of dementia paralytica. The proportion in Paris is 15 per cent. The author sees in all this a reason for the assumption that an added factor is necessary besides the syphilis in order that these two diseases should be produced. In this connection he assents to the dictum of Joffroy that the severity of the initial disease and its treatment have little to do with the possibility of the later development of tabes or dementia paralytica. The theory that a special predisposition exists and that upon that numerous other factors might have a place in causing the final disease, is the position taken by the author. A specific and for the most part congenital predisposition of

the nervous system furnishes the soil upon which later is developed the disease in question. The factors that are active in the final causation are trauma, alcohol, syphilis. Of these the author considers syphilis of the least importance.

PROOF OF THE EXISTENCE OF CHOLINE IN THE CEREBRO-SPINAL FLUID BY MEANS OF A POLARISING MICROSCOPE.—Donath (*Revue Neurologique*, No. 4, 1906.)—Donath has held now for some time that there is a close relation between choline and epilepsy and that very likely this relation may be a causal one. His results have been criticised and now he has succeeded in devising a method by which the existence of choline can be demonstrated in the cerebro-spinal fluid by means of crystalization and can be observed by the polariscope. Chloroplatinate of choline can be accurately differentiated from other substances.

OPHTHALMOLOGY.

IN CHARGE OF

JOHN GREEN, JR., M. D.

PASSIVE HYPEREMIA IN OPHTHALMIC THERAPY.—Renner (*Munch. Med. Woch.*, January 9, 1906.)—The method of artificial passive hyperemia as advocated by Bier in the treatment of inflammations has been investigated by Renner with a view to ascertaining its value in certain superficial diseases of the anterior segment of the globe. The patient's neck was encircled by an elastic band 3 cm. wide. Experimenting on normal eyes, it was found that after the band had been in place three to eight hours there was produced a sense of lid tension and pressure in the extrinsic muscles. The ocular conjunctiva was slightly, the palpebral notably congested. There was no disturbance of motility, change in the intraocular pressure or lowering of vision.

The method appeared to exercise a particularly favorable effect upon parenchymatous keratitis, such cases recovering without other treatment. A beneficial influence was also noted in serpent ulcer, though the effect was less marked. In phlyctenular keratitis and corneal opacity with or without vascular pannus the results were negative.

In no case was the ocular condition aggravated by the treatment. Most of the patients were children, or young adults free from cardiac or vascular disease.

TWO CASES OF LID-CLOSURE PUPIL REFLEX.—Ballantyne (*Ophthalmoscope*, February, 1906.)—In both cases spasmodic closure of the lids gave rise to a contraction of the pupils. On opening the eyes the pupils were found smaller than they had been before closure and required an appreciable time to dilate to their former size. The pupillary contraction took place when, the patient attempting to close the eyes, the lids were held forcibly apart. Careful tests showed that the reaction was not due

to pressure on the eyeball nor was it evoked by a foreign body placed upon the cornea or sclera. There was no reaction when the lids were closed passively, thus indicating that the active innervation of the orbicularis was the factor in determining the pupil contraction.

This associated action of the sphincter iridis and orbicularis tends to support the theory of the innervation of the orbicularis from the nucleus of the third nerve. No definite diagnostic value can be attached to it.

EPITHELIOMA OF THE LID. OPERATION OR RADIOTHERAPY?—Trousseau (*Ann d' Oculist*, January, 1906.)—The opinion has been gaining ground that the early extremely favorable views with regard to radiotherapy in skin cancers must be modified in the light of later experience. In his consideration Trousseau excludes such benign varieties of skin cancer as would get well under any form of treatment and refers only to those cancers which, in their biologic characteristics and histologic structure, give indubitable evidence of malignancy.

While admitting definite and permanent cures of lid cancer after radiotherapy, he notes other cases in which the disease improved or disappeared entirely on the surface only to penetrate into the deeper structures. He cites a case of epithelioma at the inner angle, in which an increase of ulceration with involvement of glands followed the application of the ray. In some recurrent cases the x-ray has seemed to hasten the progress of the disease. Trousseau appears to have been extremely fortunate in avoiding recurrences in his operated cases and is hence inclined to favor operation as the method of choice.

INJURY TO THE HEAD FOLLOWED BY OPTIC NEURITIS-LUMBAR PUNCTURE-RECOVERY.—Chaillous (*Soc. d' Ophthalm. de Paris*, Meeting of December 5, 1905.)—Following a fall on the head the patient remained comatose for nine days. On regaining consciousness he complained of violent headache and disturbed vision. Ophthalmoscopic examination revealed a double optic neuritis and unilateral retinal hemorrhage. The ocular signs and headache disappeared shortly after the withdrawal (by lumbar puncture) of 15 ccm. of cerebro spinal fluid.

Chaillous insists on the necessity of ophthalmoscopic examination in every head injury presenting signs of increased intracranial pressure. The presence of optic neuritis is an indication for the performance of lumbar puncture.

TRUE HYPERTROPHY OF THE EXTRINSIC OCULAR MUSCLES.—Mauch (*71. Graefe's Arch. f. Ophthalm.*, September 26, 1905.)—A cancer of the right upper jaw had invaded the orbital tissues, producing exophthalmus and complete immobility of the globe. Complete exenteration of the orbital contents was performed.

Examination revealed an enormous regular hypertrophy of the extrinsic muscles, the muscle volume being more than three times the normal. Microscopically, the muscle tissue was found absolutely normal.

LARYNGOLOGY AND OTOTOLOGY.

IN CHARGE OF

W. E. SAUER, M. D.

INDICATIONS FOR A CURATIVE TRACHEOTOMY IN TUBERCULOSIS OF THE LARYNX.—Henrici (*Archiv. f. Laryngologie und Rhinologie*, Band 18, Heft., 1.)—The author reports in detail a case of tuberculosis of the soft palate and larynx in a girl of 12 years, which grew steadily worse under local treatment with lactic acid and the curette. An involvement of the lungs could be made out. The patient was tracheotomized and from that time on her condition began to improve. The patient began to improve and the infiltrations gradually disappeared. The canula was removed five months later. A laryngoscopic examination revealed only a slight thickening at the posterior end of the right false cord. This was removed. A microscopic examination revealed just one tubercle in the mass. A laryngoscopic examination three months later revealed nothing abnormal. Brief reference is also made to three similar cases which had been previously reported by the author. One of the cases was operated upon five years ago and the other two three years ago. All are well.

The indications given for a curative tracheotomy are: 1. The operation should be done only in cases under twenty years. 2. The lungs should be free or only slightly involved. 3. The process in the larynx should be of a benign character.

THE QUESTION OF A PRIMARY TUBERCULOSIS OF THE MASTOID IN CHILDHOOD.—Ismer (*Archiv. f. Ohrenheilkunde*, Band 67, Heft. 2 and 3.)—With a view of determining the frequency of tuberculosis of the mastoid in children and how this infection takes place, the author examined forty successive cases of mastoiditis in children up to 13 years of age which had been operated upon at the University clinic of Halle. Under these forty cases he found four in which a positive diagnosis of a tuberculosis of the mastoid was made out. The diagnosis was based on the microscopic examination of the pus and tissues and animal inoculations. The author concludes as follows:

1. Tuberculosis of the mastoid in childhood occurs much more frequently than is ordinarily believed. About 13 per cent. of all mastoid cases are tubercular.

2. About half of the cases of tuberculosis of the mastoid are primary, that is the infection takes place through the blood. The other half of the cases are secondary to a tuberculosis of the lymphatic tissue in the nasopharynx.

3. The onset of this disease is a gradual one, with little or no pain. The microscopic appearances at the time of operation do not lead one to suspect a tuberculosis.

4. The only positive evidence of a tuberculosis of the mastoid is the microscopic examination of the diseased tissues.

5. The prognosis following the operation of a primary tubercular mas-

toiditis is very good, but in secondary cases the spreading of the primary focus menaces the life of the patient.

A brief history of the forty cases is given in tabulated form.

THE DIFFERENTIAL DIAGNOSIS OF CEREBELLAR ABSCESS AND SUPPURATION OF THE LABYRINTH. — Neumann (*Archiv. f. uer. Ohrenheilkunde*, Band 67, Heft 2 and 3.)—Cerebellar abscess and suppuration of the labyrinth have so many symptoms in common that a differential diagnosis is many times impossible. The author lays special stress on the value of nystagmus as it occurs in these conditions. In suppuration of the labyrinth the nystagmus becomes less and less marked and finally disappears as the suppuration extends, while in cerebellar abscess the nystagmus increases as the disease progresses. Also in suppuration of the labyrinth the nystagmus occurs in the beginning when the eye is turned to the diseased side, whereas this may disappear and the nystagmus still be present when the eye is turned to the well side. In cerebellar abscess the conditions are reversed. The nystagmus is first observed when the eye is turned to the healthy side and then later suddenly turns to the diseased side. When this form of nystagmus is observed a positive diagnosis of cerebellar abscess can be made. Another point in the diagnosis is that if after the labyrinth has been opened by operation a nystagmus due to a labyrinthal trouble rapidly subsides while the nystagmus due to a cerebellar abscess remains the same. Neumann reports five cases in which these conditions were observed and carefully studied.

DIAGNOSTIC AND PROGNOSTIC VALUE OF AN EXAMINATION OF THE THROAT IN PULMONARY TUBERCULOSIS.—Harland (*New York Medical Journal*, March 10, 1906.)—The value of a throat examination in calling attention to the presence of unsuspected pulmonary tuberculosis is pointed out by Harland. In many cases of tuberculosis of the lungs the disease is often accompanied by considerable wasting of the mucous membrane of the upper air tract together with changes in the quality of the secretions, the appearance being to a certain extent characteristic. The symptoms associated with these changes in the nose and throat are in themselves suggestive, viz.: constantly recurring colds, continued dropping of mucus from the naso-pharynx into the throat, hoarseness and coughing. The mucous membrane is often found wasted and bathed with sero-mucous. In such cases there is often a persistent sub-acute laryngitis. Such symptoms and appearances should lead to inquiry for other signs of the disease. The value of a throat examination in making a definite prognosis is not to be underestimated, for the appearance of laryngeal tuberculosis becomes to a certain extent an index of the seriousness of the patient's condition. The presence of any laryngeal involvement makes the prognosis less favorable, but not necessarily hopeless. The character and the location of the laryngeal involvement plays an important part. Those cases with deep ulcerations are always very grave, whereas the infiltrative cases offer a very fair prognosis.

DERMATOLOGY AND SYPHILIS.

IN CHARGE OF

MARTIN F. ENGMAN, M. D.

RESEARCHES INTO THE ORIGIN AND STRUCTURE OF MOLES AND THEIR RELATION TO MALIGNANCY.—Wilfred S. Fox (*Brit. Journal of Dermat.*, March, 1906.)—The seventeen specimens which formed the nucleus of this article were embedded in paraffin and cut and stained by various methods. They were obtained from the following sources which the author divides into groups for the purpose of histological convenience:

Group A were taken from young infants showing the development of the mole. Group B were moles taken from adults. Group C were hard nævi. Group D were those becoming malignant.

From extensive study of these preparations the following conclusions are given: 1. That in those moles which show typical columns of cells the cells are epidermal in origin. 2. That there is a rare variety of soft moles which show no typical nævus-cell arrangement, and whose origin is uncertain, possibly mesoblastic. 3. That in the majority of cases nævo-melanoma are nævo-carcinoma. 4. That melanomata do arise in the skin entirely apart from moles. 5. That Cohnheim's view of the origin of malignant growths is not borne out by the foregoing observations of the histology of nævo-melanoma. 6. That the pigment appears to be closely connected with the prime cause by reason of which moles become malignant, whatever that cause may be.

ADDITIONAL OBSERVATIONS ON THE USE OF THE ROENTGEN RAYS IN DERMATOLOGY.—H. W. Stelwagon (*Jl. of Cutan. Dis.*, March, 1906.)—The writer, who has had great experience in the use of the x-rays, gives this as a resume of his conclusions since 1903. He prefers the coil to the static machine on account of its greater convenience, but he thinks that the static machine is probably therapeutically as valuable. He believes that the vacuum of the tube should be started in many instances with an inch spark gap and gradually increased during the treatment so as to affect the deeper structures. This is particularly desirable in malignant growths. The time of exposure, except in malignant diseases, should be at a distance of ten inches and of three minutes' duration, but in malignant diseases the duration can be at least five minutes. In the milder diseases ten minutes should be the limit and the distance not less than six inches, while in malignant diseases fifteen to twenty minutes or longer may be given. Care should be used in changing from one tube to another. He urges the necessity of protecting the parts not under exposure and the operator being thoroughly protected. He reiterates the value of the x-ray in epithelioma, but thinks that in certain selected cases other methods are probably more desirable. The longer his experience the more he is impressed with the belief that the best method of all in the treatment of epithelioma is enucleation by excision or cauterization and the supplementary application of the x-rays, five to ten or more exposures. He still con-

tinues to get remarkable results in acne, but it is not of the same curative value in all cases. Relapses are not uncommon, but not so common as with other methods. He reserves this mode of treatment for the most obstinate cases. In obstinate patches of psoriasis and eczema it gives most favorable results. In keratosis of the palms and localized hyperidrosis, its action is most favorable. In sycosis he has used it cautiously, conjointly with other methods with favorable results. Stelwagon's paper is concluded by the following judicious remarks:

"Finally I can say, repeating to some extent my former conclusions, that we have in the x-ray a valuable addition to our therapeutic resources, but by no means a measure that should be used indiscriminately or be permitted to supplant other methods equally useful without the possible deleterious effects; that its application should be extremely cautious and conservative in non-malignant dermatoses and, except in extremely obstinate cases, used more as an adjunct than as the sole remedy; that in malignant diseases it can be used somewhat boldly and often with the prospect of a cure, or at least distinct amelioration; but that even in such diseases it may often be more advantageously employed as a helpful and supplementary measure than as the sole method of treatment."

BULLOUS AFFECTIONS AND THEIR CLASSIFICATION.—E. B. Bronson (*Jl. Cutan. Dis.*, March, 1906.)—This is the second introductory paper upon the subject of bullous affections before the last meeting of the American Dermatological Association. The writer remarks that the term bullous diseases should be taken in a very restricted sense, inasmuch as a bullous eruption is nearly always the concomitant of some other disease. Of bullous affections there are two fundamental divisions: (a) Obstructive forms in which bullæ occur as the result of obstruction in the sweat follicles or in the lymphatic channels with mechanical obstruction at the point of escape in the epidermis; (b) acantholytic forms in which a vital impairment of the cohesions between the prickle cells enable a relatively slight collection of serum to force its way through the cells and produce a lacuna. Acantholysis may be considered a consequence either (1) of external injury, (2) of absorption into the epidermis of venous or infectious matter, (3) of some other cutaneous affection which may be either symptomatic or idiopathic, of which the bullous affection is only an incident, (4) finally of some anterior disease transmitting an injurious influence directly to the prickle cell layers of the skin, in which case the resulting bullous eruption may be a pathognomonic sign either of a localized nerve lesion, or of some more general disease reflected to the skin through the nervous system; but even in such cases the immediate cause of the bullous affection is very often some more or less slight and commonly overlooked local external injury.

SOCIETY PROCEEDINGS.

ST. LOUIS SURGICAL SOCIETY.

Meeting of February 14, 1906.

CYSTIC KIDNEYS.

Dr. Walter B. Dorsett presented two specimens of cystic kidneys
COMPLETE MEDIAN CERVICAL FISTULA, THYROGLOSSUS DUCT PRE-
VIOUS FROM FORAMEN CAECUM OF THE TONGUE TO ONE
INCH BELOW HYOID BONE; BRANCHIOGENETIC
AND POST-RECTAL CYSTS.

Dr. H. Tuholske read a paper with the above title for which see page
353.

DISCUSSION.

Dr. Glasgow said a specimen exactly similar to the ones presented by Dr. Dorsett had been presented to the St. Louis Medical Society some years ago but it was presented as a case of sarcoma. In reality it was a cystic kidney as Dr. Bremer and he testified at the time. Several years ago Dr. Glasgow saw another case similar to this. The patient was passing considerable quantities of blood and it was thought probably due to sarcoma. The patient is now in good health, proving that it must be a case of cystic disease.

Dr. Tupper said cystic kidneys of this character were, as a rule, congenital. If the normal kidney were encroached upon with any degree of suddenness to the extent exhibited by these kidneys the patient would die quickly of uremia, but in a congenital condition there is a tolerance produced by the gradual encroachment and consequently we can more readily account for the absence of symptoms of poisoning.

Referring to the second case mentioned by Dr. Tuholske, the speaker said he had been somewhat non-plussed by a case presenting somewhat the same picture. The patient was a boy who had been operated upon by the senior Dr. Jackson, of Kansas City, for hare-lip and also for cleft palate. Dr. Tupper found a cyst which had undergone the usual treatment of injection and curetting and he thought it possible he had to deal with a congenital condition resulting from some failure of closure of the lateral plates. Under pressure he injected water and found it filled up as far as the hyoid bone, but no fluid entered the mouth. He then decided to attempt to dissect out the sinus and to this end he put into use a method he had never tried before. The method was devised, he thought, by an English surgeon and was to inject into the sinus direct a wax which, after hardening, outlines the sinus and renders its excision easy. Dr. Tupper injected into the sinus liquid plaster of Paris which made a perfect cast. Dissecting the sinus out he found it went up to and underneath the hyoid bone. It seemed to come out entire and from the subsequent history he believed it did.

Dr. Tuholske said he had no doubt the kidneys presented were of the congenital variety. He had seen several like them.

Referring to the discussion on his paper he said the reason why he reported the condition of thyroglossal sinus, or fistula, is, because it is unique in that in literature up to now there has been reported not one case in which the canal has

remained pervious in its entire length. This is the first case in which fluid injected from without, below the hyoid bone, passed through the duct and came out through the foramen caecum of the tongue. During the cartilaginous stage of the hyoid the duct may pass through the lower end of the hyoid and then later will become obstructed, and we can see the duct terminate behind the hyoid instead of going upward. The origin of lingual dermoids can be traced to the lingual ducts and since they are lined with squamous and not with cylindrical epithelium, it is easily explained. This duct bifurcates and from it develops the thyroid isthmus. Lateral pouches develop and form the bases of accessory thyroids. Their origin is from the same canal which goes down to make the isthmus, either remaining there perfectly quiescent, or during the stimulus of menstruation or at the approach of puberty, springing into existence and developing thyroid cysts. The point which he desired to lay stress upon was, that all fistulae which come from the thyroid duct are always central, those having their origin in the branchiogenetic section are always lateral, that is, the opening of internal communication is always lateral. If such a cyst as this grows away from the skin in the neighborhood of the sterno-mastoid it may accidentally open in the median line, but that is accidental. This is the distinction, that the thyroglossal is always central, the other is always lateral. Koernig asserts there never has been proven a pervious thyroid canal. In *that*, this case reported, was unique, and it is the only one on record as an absolutely proven case of "complete central thyroglossal fistula."

ST. LOUIS SURGICAL CLUB.

Meeting of March 14, 1906.

SUGGESTIONS FOR IMPROVING THE RESULTS OF THE SURGICAL TREATMENT OF CARCINOMA RECTI.

Dr. Ernst Jonas read a paper with the above title for which see page 364.

DISCUSSION.

Dr. M. B. Clopton thought that Dr. Jonas had not laid enough stress upon the question of the type of growth, for the chance of recurrence was regulated very much by the type of growth. The epithelioma variety were nearer the anus and their recurrence was a very different matter from those occurring higher in the gut. Of those occurring higher up there was the malignant adenoma which was of a similar character to the malignant adenoma of the stomach and these growths were very much more benign than the medullary carcinoma or the adeno carcinoma. In the malignant adenoma type the involvement of the glands came very much later, consequently the operation was not so extensive as in a carcinoma of the adeno type where the glands are soon involved. Dr. Clopton did not agree that a colostomy was a necessity in all cases of cancer of the rectum. The healing in the Kraske operations was not very kind because so great an operative field was opened up. In those cases he had seen where the sphincter was left, the control was no better than in the Whitehead operations for hemorrhoids where too much mucous membrane had been removed. The control in those cases where the lower end of the rectum with the sphincters was removed seemed to be very good if careful dietary arrangement and training were followed.

Dr. Charles H. Dixon agreed with Dr. Jonas thoroughly on the preliminary colotomy. The speaker did not agree that the squamous type was always found about the anus, for the columnar epithelium might be changed entirely and there might then be a squamous carcinoma high up in the rectum. As to the early diagnosis, in a proctitis there was often an obstruction, and, not only this, but a cicatricial band and even a nodular condition, and still no malignancy. These were the cases where it was hard to say whether the condition was benign or not. And even if an excision was made and a piece examined under the microscope there was always the possibility that in a malignant growth one might get a portion that was benign.

Dr. Jonas, in closing, said the Kraske operation mentioned by Dr. Clopton, which was, of course, included in the sacral route methods, was also much less dangerous when a primary colostomy was done.

When this step was taken, an operation on the rectum did not differ from an operation on any other part of the body, for almost aseptic conditions could prevail at the site of the operation. He agreed with Dr. Clopton that different types of cancer varied in degree of gravity, but he did not agree that the surgeon should make his plans of operation according to the different types of the disease. In cancer of the breast, whether adeno-carcinomatous or some other type, only when the lymphatics had been thoroughly removed was it justifiable to hope that the cancer had been removed completely. While, in the typical location, the glands drained toward the hollow of the sacrum, one could, nevertheless, not be absolutely certain of this, for the lymphatics in the pelvis varied their course. As to the squamous type, regarding the question of its occurrence high up in the rectum, Dr. Jonas did not think that Dr. Clopton meant to exclude such a possibility. The case of the polypus high up in the rectum, which had undergone malignant degeneration, could hardly be called a typical squamous carcinoma of the rectum.

While he had advocated radical operations, Dr. Jonas hoped that some day all cancers would be cured by means of the hypodermic needle. He believed that it was merely a question of time when the injection of a serum would cure the disease.

Dr. Clopton, in referring to his statement that the type of operation was to be determined by the location of the growth, said that carcinoma about the lowest portion of the rectum and anus was nearly always metastatic to the inguinal glands, while in those occurring higher up usually the sacral glands were the ones affected. Consequently, in the lower growths the inguinal glands had to be removed in preference to the others, although they might also be involved and have to be removed. This destroyed the analogue with the breast operation, where the same lymphatics were always involved.

BOOK REVIEWS.

BIOGRAPHIC CLINICS VOL. III. ESSAYS CONCERNING THE INFLUENCE OF VISUAL FUNCTION, PATHOLOGIC AND PHYSIOLOGIC, UPON THE HEALTH OF PATIENTS. By George M. Gould, M. D. Philadelphia: P. Blakiston's Son & Co., 1012 Walnut St. 1905.

The present volume consists of thirteen chapters and two appendices. The use of the title "Biographic Clinics" in connection with this volume is a bit far-fetched, inasmuch as only two of the thirteen chapters are of this character, namely: Chapter 2, "The Life Tragedy of John Addington Symonds, and Chapter 3, "Taine's Ill-Health." The remainder of the book is made up of miscellaneous essays all built upon the thesis of the dire results arising from uncorrected errors of refraction. Two chapters have been contributed by English writers—one on "Eye-Strain as a Cause of Headache and Other Neuroses," by Simeon Snell, and "Slight Errors of Refraction and Their Influence on the Nervous System," by C. Ernest Pronger.

The book is well worthy of perusal.

THE PHYSICAL EXAMINATION OF INFANTS AND YOUNG CHILDREN. By Theron Wendell Kilmer, M. D., Adjunct Attending Pediatricist to the Sydenham Hospital. Illustrated with 59 Half-tone Engravings. 12mo., 86 pages. Bound in Extra Cloth. Price, 75 cents, net. F. A. Davis Company, Publishers, 1914-16 Cherry street, Philadelphia, Pa.

This little book presents in concise form the methods of physical examination of infants and young children. As the author observes, the examination of children differs very largely from the examination of the adult, a fact that the physician is prone to forget. Many of the facts stated are elementary, but the book is not the less valuable on this account. Special stress is laid on the value of inspection and palpation in the examination of children, and the information to be elicited by these methods is discussed in detail.

The special examinations which the general practitioner should also be able to make are well described.

The illustrations are a feature of the book, and are, in the main, both good and instructive.

PRACTICAL MEDICINE SERIES OF YEAR BOOKS. Vol. I. General Medicine. Edited by Frank Billings, M. D., and J. H. Salisbury, M. D., Chicago, 1905. Price \$1.

This volume places before the reader a review of the literature in general medicine of the past year (1904-1905) in a form not too greatly condensed for practical use.

GALL-STONES AND THEIR SURGICAL TREATMENT. By B. G. A. Moynihan, M. S. (London), F. R. C. S., Senior Assistant Surgeon to Leeds General Infirmary, Leeds, England. Second edition, revised and enlarged. Octavo of 458 pages, beautifully illustrated. Philadelphia and London: W. B. Saunders & Company, 1905. Cloth, \$5.00 net; Half Morocco, \$6.00 net.

The first edition of Mr. Moynihan's work on gall-stones was completely exhausted in eight months. Mr. Moynihan, by his masterly presentation of operative technic and clear, logical discussion of indications and contraindications, has won an enviable place in contemporary abdominal surgery. In this edition, increased in size by some seventy pages, many additional case records have been incorporated and a number of new illustrations added.

MATERIA MEDICA AND PHARMACY. By Reynold Webb Wilcox, M. A., M. D., LL. D., Professor of Medicine at the New York Post-Graduate Medical School, etc. Sixth Edition. Philadelphia: Blakiston's Son & Co., 1905. Price, Cloth \$2.50.

This is the first of two volumes prepared by Dr. Wilcox, based upon the fifth edition of White and Wilcox's "Materia Medica, Pharmacy, Pharmacology and Therapeutics." Since the author is the Vice-Chairman of the Revision Committee of the U. S. Pharmacopœia, it goes without saying that these two volumes have been prepared in accordance with the last, the eighth decennial revision of the pharmacopœia. In this volume the preparations are considered in their natural order. The subject is presented in a complete and clear form, which must appeal to both the teacher and the student.

MANUAL OF OPERATIVE SURGERY. John Fairbairn Binnie, A. M., C. M. With 559 illustrations, a number of which are printed in colors. Philadelphia: P. Blakiston's Son & Co.

Book of 644 pages, of pleasing size, well illustrated, with 559 plates, which are almost uniformly good, many being reproduced directly from photographs, and those of more diagrammatic nature well selected and suited to their purpose. The letter-press also is of good quality. The descriptions of operations are concise and attractively given, the easy, flowing style of the author adding to the pleasure of the reader.

The author has wisely omitted much that is adequately treated in text-books on General Surgery. Such things as amputations and ligations are not included in his volume. He has also wisely avoided the descriptions of the operative work done on bones and joints.

The chapter on the operative treatment of hernia, and on the operations done on the biliary passages are of particular merit.

METHODS OF ORGANIC ANALYSIS. By Henry C. Sherman, 1905, New York: The MacMillan Company.

Sherman's book is primarily written for the third year students in the school of Chemistry of Columbia University. In going over it, the result of this announcement is a profound respect for the high level of material that this school must have as the object of its teaching. For practical organic analysis, that is mainly the analysis of food materials and substances related to them, no more ideal way of introduction could be found. What appears as the most striking feature of the method of demonstration used is, that the emphasis is not laid on the easiest and most practical procedures, but on their theoretic correctness or at least their nearness to it. Unlike other compends of this kind, the author has impressed the importance of this way of doing work by many references to literature on single problems, thereby directing the reader to the recognition that personal effort cannot be spared even by as good a book as his. The spirit in which it is conceived and which is carried through the 250 pages is admirable and a high exemplification of the character of work done by our American teachers and investigators, who apply their science to the welfare of the populace.

A MANUAL AND ATLAS OF ORTHOPEDIC SURGERY, including the History, Etiology, Pathology, Diagnosis, Prognosis, Prophylaxis and Treatment of Deformities, by James K. Young, M. D. Illustrated with over 700 photographs and line drawings, mostly from original sources; half morocco; 942 pages. Price \$12. Philadelphia: P. Blakiston's Son & Co., 1905.

This book deserves the title of Atlas much more than that of manual. It is a very heavy book, beautifully bound. The character of the illustrations is beyond criticism. Practically every orthopedic condition is illustrated by an excellent photograph. The line drawings and anatomical plates are also of the best. Everything in the scope of orthopedic surgery is completely covered and

illustrated, without encroaching upon the field of general surgery, or any of the other specialties.

DIE MEDIZIN IN DER KLASSISCHEN MALEREI. Von Dr. Eugen Holländer. Berlin. Verlag von Ferdinand Enke, Stuttgart. Price, Mks. 16.

To search among the numberless art treasures of the Old World for paintings, etchings, sculptures, etc., which show some relation to medicine, while certainly an arduous task, is undoubtedly a fascinating pursuit. Work of this sort, of course, can be undertaken only by a physician who is an art connoisseur, a somewhat unusual combination of abilities and interests. In this volume Holländer proves that he is well fitted for such a task. He seems thoroughly familiar with all the famous picture galleries and museums of Europe, shows an intimate knowledge of the history of medicine and writes in an entertaining and attractive style. He has grouped the 165 reproductions of selected paintings and etchings according to certain subjects, such as anatomy, presentation of diseases, allegories, hospitals, etc., and produced a unique work—a history of medicine in pictures.

Obviously this book can be fully appreciated only by German-speaking physicians, but even those not familiar with that language will derive considerable pleasure from a study of the numerous and unusually fine illustrations contained in this work.

DARWINISMUS UND LAMARCKISMUS. ENTWURF EINER PSYCHOPHYSISCHEN TELEOLOGIE. Von Dr. August Pauly in Muenchen. Verlag von Ernst Reinhardt. Muenchen. Karlstr. 4. Price, Mks. 7.

This volume contains a critical review of the present status of the Darwinian problem, and numerous new thoughts, entirely original with the author, on many problems of modern natural history. The author's position may be briefly defined as follows: In his opinion the selection doctrine of Darwin, if strictly separated from the theory of Lamarck, is untenable because it is incompatible with generally accepted scientific principles. On the other hand, he finds, at the bottom of Lamarck's theory, principles which are fully in accord with the laws of causation, and those of the preservation of energy. In this way Pauly endeavors to prove that the actual cause of selection is an organic, psycho-physical one which some day possibly will be studied and analyzed by the physicist, instead of the philosopher.

DAS GESCHLECHTSLEBEN DES WEIBES. Von Dr. Anna Fischer-Dueckelmann. II. Auflage. Verlag von Hugo Bermuehler in Berlin. Price, Mks. 2.50.

Among the numerous contributions on the sexual problem which of late have appeared in form of monographs and good-sized volumes, this little book deserves special notice. It is written by a woman. Candidly she gives her views, some of them bizarre, some certainly wrong, but all rather interesting.

PRACTICAL MEDICINE SERIES OF YEAR BOOKS. Comprising 10 Volumes on the Year's Progress in Medicine and Surgery. Issued monthly. Volume IV. Gynecology. Edited by E. C. Dudley. Volume V. Obstetrics. Edited by Joseph B. De Lee. Series 1905.

These two little volumes give an exhaustive review of the enormous obstetric and gynecologic literature which has appeared within the twelve months preceding the publication of the volumes. The search of the editors for interesting contributions, especially in foreign literature, undoubtedly was a thorough one. The abstracts of the numerous papers are given in sufficient length to enable the reader of these volumes to gain a clear conception of the ideas of the writers. Both editors fall, however, into the mistake to devote comparatively too much space to a consideration of the various papers published by themselves.

THE CELLS OF THE HUMAN BLOOD IN ULTRA VIOLET LIGHT. E. Grawitz and E. Greenberg. Leipzig. Thieme. 1906.

It seems that this publication will open a new field for microscopic investigation. For the first time Grawitz and Greenberg have utilized, by means of a Zeiss-apparatus, the ultra violet rays in the examination of blood. Of course, the pictures were obtained as photographs. As the main advantage of the new method is a much higher power of definition than is obtainable by other microscopes, certain questions of the finer structure of the blood-constituents were investigated. The red corpuscles are circular discs, rarefied in their central portion; they do not possess a visible framework; the same holds true for nucleated corpuscles. The body of the mono-nuclear elements, even of the small lymphocytes is never homogenous, but always shows a definite structure. The small forms possess an impermeable nucleus, while those of the larger ones are permeable. In the neutrophilous cells the granulations vary in the degree of their permeability; their nuclei never appear so varying in shape, as they appear in fixed and stained specimens. It is impossible to make out any differentiation in the substance of the blood-plates. Many other findings are reported, and certainly show that the method is not only interesting, but very important, and we may expect for clinical microscopy and for histology in general wide reaching results.

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ORIGINAL ARTICLES.

TWO CASES ILLUSTRATING THE COMBINATION OF ORGANIC WITH HYSTERICAL DISEASE OF THE NERVOUS SYSTEM.

BY SIDNEY I. SCHWAB, M. D., St. Louis.

The association of hysteria, or rather hysterical symptoms, with organic disease of the nervous system is always interesting, partly from the point of view of differential diagnosis and partly on account of the unusual opportunity such cases present for the study of the origin and evolution of symptoms of both kinds in the same individual. The two cases here described are somewhat typical of this condition and show well how difficult the diagnostic problem may become. The first case illustrates the combination of a hemiplegia resulting from an apoplexy and hysteria in a woman 36 years of age; the second illustrates the combination of hysteria and an infectious multiple neuritis. The clinical history of these cases will be given briefly, chiefly with the idea of accentuating the features incident to the occurrence of the two conditions together in the same individual.

Case 1. Mrs. V., age 36, mother of three children, has always been looked upon as a nervous individual. She has had numerous hysterical attacks during the past few years. There is nothing in her past history, other than this that throws any light on the present attack. Her family history shows nothing of importance. For four or five years previous to the present illness she had taken care of a sister who had suffered from an apoplectic attack with a resulting hemiplegia. When her sister died, Mrs. V. had acquired a considerable knowledge of the symptoms which commonly are met with in this condition. This intimate acquaintance with the clinical picture of apoplexy and the hemiplegic state forms an important psychical element in the subsequent history of her case. The patient was always in great fear that she herself would be a victim of the disease which had proven so fatal to her sister. This fear, together with the increased suggestibility incident to her chief trouble, formed the origin of several seizures of what she supposed were true apoplectic attacks. How closely they resembled the true condition is

not possible to say, as the family were not especially observant on this point. An important fact, however, is that the family learned to treat them as manifestations of an imaginary complaint, due to the knowledge of the disease she had acquired during the time her sister was under her care.

On the day before the attack here to be described a neighbor living in the flat below, died suddenly from some heart condition. Her death was distressing in many ways and the patient was continually with the excited family and took an active part in all the necessary preliminaries to the funeral. While the services were in progress Mrs. V. suddenly felt a constriction around the throat and experienced great difficulty in breathing. She became dizzy and attempted to leave the room. She had to be helped to bed and soon became stuporous. The family believed that this was merely a fresh manifestation of the old imaginary attacks and did not feel that it was necessary to call medical aid until late that night, when they grew alarmed at the increasing stupor. A physician called at that time gave a hypodermic of morphine and apparently considered that the patient was suffering from an attack of hysteria, basing this diagnosis, no doubt, largely upon the history of the case which was given him. The result of the morphine was a sudden development of rather wild delirium and a total disappearance of the state of stupor with which the attack had begun. I was asked to see the case the next day with a diagnosis of hysteria already made. The impression made by this diagnosis was hard to shake off and may have had something to do with complicating the diagnostic problem.

At the first examination it was evident that there was present incomplete hemiplegia of the right side, the facial was slightly involved and the hypoglossus intact. There was found likewise an incomplete motor aphasia chiefly limited to the naming of objects. A hemianesthesia on the right side and a total absence of all deep reflexes completed the picture. The pupils were very small and sluggish. The Babinski reflex was not to be found. The general physical examination showed a slightly hypertrophied apex beat with no dilatation and likewise a slight accentuation of the second pulmonic sound. There were no murmurs. The urine showed a trace of albumen with no microscopical elements of a pathological nature. There was no apparent arteriosclerosis. The patient was sent to the hospital for more careful observation. At this stage of the case a diagnosis of organic hemiplegia complicated with hysteria was thought to be justified and the subsequent course at the hospital bore out this contention. While there the reflexes in the lower extremities returned, at first very slightly and later exaggerated. A well marked Babinski developed on the right side and remained absent on the other. The aphasia gradually cleared up, but with such unusual

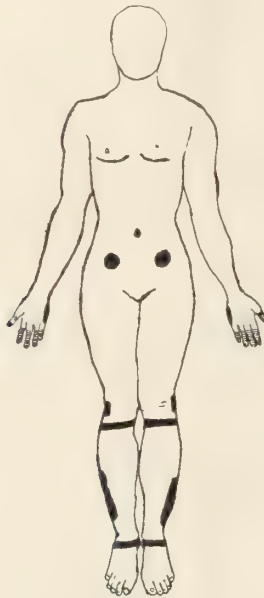
variations that it is extremely doubtful if this was of organic origin. There were days when the aphasic symptoms were almost complete, succeeded by days when no evidence of its existence could be determined. The anesthesia of one-half of the body disappeared to be succeeded by disseminated areas of anesthesia and hyperesthesia, which had no constant location and no constant duration. The patient has at the present time, numerous neurotic symptoms which can only be interpreted as hysterical in origin. Attacks of dyspnoea, for example, during which the heart rate is little over the normal. Symptoms of regional paralysis, sometimes on the paralyzed side and sometimes on the normal side, which subside as suddenly as they appear. In each instance the diagnosis is not easily made on account of a possible organic origin of even the most bizarre group of symptoms.

This case is of interest chiefly for the reason that the hysterico-organic nature of many of the symptoms is plainly discernible and for the reason, also that there was another element in the causation of the symptom complex which may be regarded as mental; and likewise for the reason that the masking of symptoms by two totally different processes in the same individual gave to them an unusual aspect which by no means was justified by the actual state of affairs.

Case 2. In this case the diagnostic problem was even more complicated and the final diagnosis was made only after studying the case for a week or more. A somewhat similar mental element was present in this case and was one of the causes which lead to a wrong conception of it in the beginning.

Mrs. Mac, age 28, the mother of three children, has always been considered excitable and inclined to nervous attacks of one kind and another. She had had no important previous sickness except grippe. The present attack began as follows: For about a week before the real onset of the symptoms she had not been feeling well. Her youngest child, about six months of age, while seated in a high chair suddenly, without any warning or cause, toppled over with the chair on top of him. The mother was in an adjoining room and turned around just in time to see the child in the act of falling. The child was evidently unconscious for a moment and the mother thought that the child had been killed by the fall. She experienced at this time a peculiar sensation in her legs, as if they were suddenly giving away under her. As soon as the child was seen to be uninjured the mother felt somewhat herself again, but still noticed the peculiar sensation noted above. To this occurrence the patient has always referred the origin of the symptoms which later developed. From this moment apparently a progressive inability to move her legs developed until at the end of three weeks she was compelled to stay in bed. Her family physician then suggested further advice and I saw the case about three weeks after the initial symptoms.

At the first examination it was seen that there was present a total paralysis of most of the muscles of both legs. This paralysis was seen to be flaccid in type. The amount of voluntary motion present was as follows: A slight inward and outward rotation of both legs at the hip, slight flexion at the knee in both legs, extension of the left leg at the knee to a minimal degree, absent in the right. No movement at all at the ankle. The muscles felt soft, but no apparent atrophy could be discerned. A sensory examination revealed the fact that the distribution of the areas of anesthesia and hyperesthesia was strictly bilateral and occupied exactly similar positions on each extremity, and further



— Hyperesthesia.

≡≡≡ Anesthesia.

the bands of hyperesthesia could be moved up or down, under the influence of suggestion. In addition the limits of the areas affected from the normal areas were so sharply drawn that the line of division could be exactly demonstrated. A reference to the diagram will make the total sensory disturbance clear enough. At no time was there found any pain along the course of the nerve trunks and at no time were the muscles themselves at all tender. There was always some marked paresthesia and indefinite feelings of pain referred to the ankle of both legs. The reflexes gave the following: Both knee jerks were absent, Achillis and plantar completely gone. No Babinski. The pharyngeal, conjunctival,

corneal, nasal, were absent. Abdominal, tendon and periosteal in the upper limbs appeared normal. Electric examination of the paralyzed muscles showed a total lack of response to faradic excitability in both muscle and nerve in the muscles of the paralyzed members. The general physical examination revealed nothing of importance except a rapid heart which has always been present. The heart and lungs, urine, etc., were normal. A glance at the sensory chart will show that the initial sensory disturbance could not be explained upon any basis but that of a hysteria, particularly when the fact is noted that the distribution of some of the zones of hyperesthesia, especially the one below the knee, could be changed by suggestion. As the case advanced the definite limits of the sensory zones gradually became merged until now, about four weeks after the first examination, the sensory picture bears no resemblance to the early condition. At present the anesthesia of the conjunctiva and the pharynx still exists, but the ribbon of hyperesthesia below the knee has disappeared as has likewise the glove anesthesia in the fingers and hands. The case is now plainly one of a multiple neuritis, probably infectious in nature, implanted upon an individual potentially hysterical so that the mental trauma awoke the hysterical symptoms at about the same time that the neuritis began to manifest itself. The difficulty in the diagnosis in this case, as in the former, lay in the matter of differentiating the two conditions so that the masking of the one by the other might not give rise to such confusion in the clinical analysis of the case as to demand a definite single diagnosis. In this case the diagnosis of hysteria seemed so clear at first that the symptoms depending upon a clearly present organic disease were regarded as something either accidental or the result of previous illnesses of one kind or the other. This way of thinking was made more insistent by the thought that it is always necessary in a hysterical condition to be absolutely certain of the diagnosis for the effect on the patient and for the proper development of the logical therapy.

These cases present types of conditions which must be much more frequent than is commonly supposed because they comprise only a small per cent. of the material already at hand. They are frequently overlooked chiefly for the reason that symptoms are forced into the diagnosis of a case in order to create a certain mental ease on the part of the attending physician. It is extremely likely that in all organic diseases of the nervous system there are to be found certain symptoms that can not be adequately explained by the anatomic effects of the disease, but which must be the result of the effect on the mind of the patient of the "disease trauma" which is present. If such things are looked for with greater care they will be found and much light may be thrown on the phases that functional symptoms take when they are a part of a definite organic disease of the nervous system.

THE "PSEUDO-SCORBUTIC TYPE" OF ACUTE LYMPHATIC LEUKAEMIA.

BY JESSE S. MYER, M. D., St. Louis.

The acute lymphatic leukæmias are of interest, not only to those who observe them for the first time, but also to those who have been so fortunate as to have observed a number of cases, for each has its new features and new phases to present. They are not so uncommon, however, as to justify a detailed report of a single case unless, perchance, it is characterized by some very unusual feature. The chief interest in this report lies in the fact that the physical findings and the circumstances surrounding the case were such as to lead to a tentative diagnosis of scorbutus. No better example of the importance of prompt and careful examinations of the blood in every obscure case could be offered; for it was through this means only that, in a short time following the patient's admission to the hospital, a case which seemed unquestionably to be one of scurvy was promptly shown to be one of acute lymphatic leukæmia. That it is not unusual for cases of this sort to be misinterpreted may be inferred from the statement of Pincus, who says: "From the number of similarities, it may be conjectured that many of the obscure hemorrhagic cases described as morbus maculosus, scorbutus, etc., were in reality acute lymphatic leukæmia; especially since with comparatively little attention to the blood examination an increase in leucocytes is mentioned in more than one of them," and calls attention to the work of Dennys and Zimmerman and others. According to the different phases that this disease may assume, Gilbert and Weil* have divided them into three classes: (1) Typical acute leukæmia, chiefly characterized by glandular swellings; (2) the hemorrhagic form, characterized by hemorrhages into the skin and from the mucous membranes; (3) the pseudo-scorbutic form, characterized by involvement of the mucous membranes of the mouth and nose, with hemorrhage. It is a case of the third class that we wish to present.

During my recent service in the Jewish Hospital, a Russian, aged 37, was admitted to the wards in a very precarious state. He was partially delirious, as a result of a raging fever (104.6 degrees upon admission); the condition of the gums and mucous membrane of the mouth was such as to make articulation impossible, and he knew no English whatever. It was utterly impossible, therefore, to elicit a history from him even with the aid of his fellow-countrymen in the wards, for even during his lucid moments he could not enunciate plainly enough to enable them to understand him. He was a well-developed, well-nourished individual, about five feet, six inches in height, weighing one hundred and fifty pounds. Attention was at once directed to the mouth, which presented a very un-

* Gilbert and Weil, *Arch. ae Med. Experim.*, 1899, XI.

usual appearance. The gums were swollen to such an extent as to almost enclose the teeth, anteriorly and posteriorly. The mucous membrane of the mouth was swollen and hyperæmic, and bled upon slight provocation. The tongue was thick, dry and cracked.

His relatives knew nothing of his previous history and but little of his recent ailment. He had come to America from Russia, as a steerage passenger, eight weeks prior to his admission into the hospital. So far as they knew, he had never had a serious illness in Russia, and had been perfectly well during the first two weeks of his sojourn in this country. During this period, he seemed ambitious and industrious,—and immediately sought a means of earning a livelihood for himself and his family. He had not brought his wife and children with him, but hoped to send for them as soon as he had earned his first American money.

About six weeks ago (October 15), he began complaining of sore throat, and visited the dispensary, where he was treated by the usual methods for acute tonsillar hypertrophy. The disturbance, which seemed to have its origin in the tonsils, gradually involved all of the mucous surfaces of the mouth. The gums soon became swollen and bled upon slight provocation, so that he was soon unable to take solid food. During the four weeks prior to his admission, he had taken liquids only, and as a result had grown very weak. They were unable to state how long fever had existed. This was all that could be elicited of his history.

In view of his birth-place—Russia—his recent voyage as a steerage passenger, and his unhygienic surroundings since arriving here, we at once thought of the possibility of scorbutus.

The physical examination revealed no hemorrhagic spots anywhere upon the body; the skin was pale and the mucous membranes anæmic; there were several pigmented areas over the right ankle and lower leg—evidently the remnants of old ulcers; no œdema; he breathed with some difficulty, constantly through the mouth (the cause for this is seen in the swollen condition of the gums, tonsils, soft palate and mucous membranes of the upper respiratory tract in general).

Mouth.—The gums extended to the free margin of the teeth, both above and below, anteriorly and posteriorly; the edges of the teeth are barely seen between the anterior and posterior layers of the gums (Fig. 1.); which are rather hard, somewhat granular in appearance, slightly bluish in color, the edges are indentated and bleed upon very slight manipulation; there is no discharge of pus, pointing to the existence of pyorrhœa; there is no ulceration or erosion of the gums or mucous membranes, and the odor is not especially bad; the tongue is thick, dry, cracked and heavily coated. He has a highly arched palate. The tonsils, the anterior pillars of the fauces, the uvula and the soft palate are œdematous. On the posterior wall of the pharynx is seen considerable quantity of yellow

mucous. The mucous membrane of the nose is dry. The nasa-pharynx could not be examined.

Glandular System.—There are chains of enlarged lymph nodes in the anterior and posterior cervical regions on both sides. These nodes are about the size of navy beans and do not coalesce. The sub-maxillary and sub-lingual glands are considerably enlarged. These, as well as the lymph nodes, are painful to pressure. There are a few enlarged nodes about the size of peas, in the left axilla and two in the right axilla. The lymph nodes in the right and left groin are but slightly enlarged. Aside from this, the glandular system is not apparently involved.

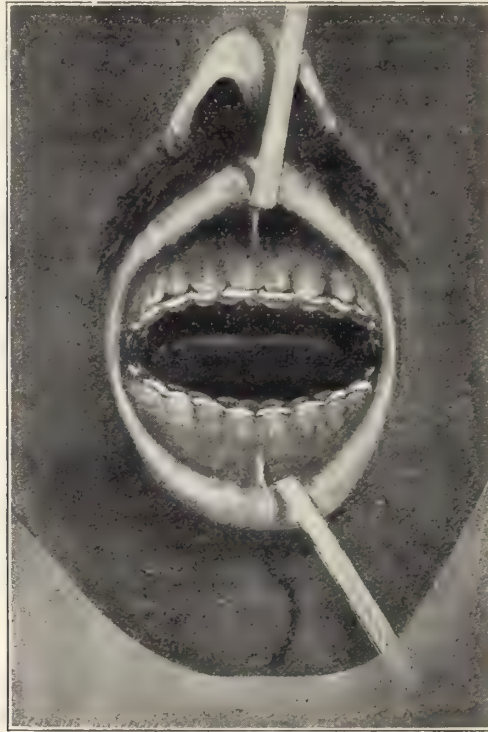


FIG. 1.

Heart.—The dullness not clearly made out on account of an existing emphysema. The apex beat is palpable in the fifth interspace. The heart-beats are rapid, but regular and strong. The first sound at the apex is impure; no murmurs to be heard. The pulse 120, fairly full and strong.

Lungs.—Over the right lower lobe posteriorly the percussion note is somewhat flat and a few moist rales are heard. Over the upper left lobe anteriorly, prolonged expiration. The lungs are otherwise normal.

Liver.—The dullness cannot be made out anteriorly; in all probability

on account of a loop of intestine lying in front of the liver. The dullness in the axillary line indicates normal size and position.

Spleen.—Is not enlarged and cannot be palpated in any position of the patient. Percussion indicates normal size and position.

The abdomen is not sensitive to pressure, but slightly tympanitic.

Pressure over the shaft of long bones seems to elicit no pain.

The examination of the nervous system reveals nothing pointing to any primary disturbance, either centrally or peripherally. The patellar reflexes are normal, as is the pupillary. There is no paralysis, and no abnormal peripheral sensory manifestations.

The examination of the eyes shows both discs slightly hazy and in the left eye are seen three hemorrhagic spots, between the disc and the macula.

Urine.—Specific gravity 1020; clear; dark amber color; contains a trace of albumen; no sugar; microscopically a few hyaline casts.

There is nothing in the physical examination worthy of note except the findings in the upper respiratory passages and the enlargement of the cervical lymph nodes and salivary glands. The latter might well be considered of inflammatory origin and the result of the former.

Blood. The freshly drawn blood is thin and flows freely, and is slow to coagulate; hæmaglobin, 32 per cent.; leucocytes 78,600; erythrocytes, 2,800,000; a slight degree of poikilocytosis. The examination of fresh and stained specimens reveals a typical picture of acute lymphatic leukaemia, with the usual marked preponderance of lymphocytes, by far the greater majority of which are of the large variety, about one-third of the number being of the small variety. The polynuclear leucocytes are greatly outnumbered. Few normo-blasts; an occasional eosinophile, and a few myelocytes.

The following table indicates the blood findings in four examinations made during the patient's short sojourn in the hospital:

DATE	Hæma- globin	Leucocytes	Erythrocytes	Lymphocytes		Polynu- clear Leuco- cytes	Eosino- philes	Myelo- cytes
				Large	Small			
Dec. 1 . . .	32%	78,600	2,800,000	56.4%	18.6%	20.3%	0.6%	4.0%
Dec. 4 . . .		80,600		63.0%	13.1%	19.6%		4.0%
Dec. 10 . .		156,700		66.7%	15.1%	13.4%		4.5%
Dec. 16 . .	23%	158,000	2,210,000	82.0%	10.6%	4.8%	0.4%	0.2%
Dec. 18 . .	Died.							

It is interesting to note that the leucocytes increased within a period of two weeks from 78,600 to 158,000, and that the proportion of leucocytes to erythrocytes rapidly changed from 1 to 36 to 1 to 14. The decrease of the red corpuscles did not keep pace with the increase of the white. The sole increase of the leucocytes was in the large lymphocytes, varying within 14 days from 56.4 per cent. to 82 per cent. There is a steady decrease of small mononuclear lymphocytes and a rapid decrease of the polynuclear leucocytes.



FIG. 2.

With rapidly developing asthenia the patient died on the eighteenth day after his admission to the hospital. He was unable during this time to take any but liquid nourishment on account of the condition of his mouth, and but little of that. During the first ten days the temperature varied without remission from 103 degrees F. to 105 degrees F. Cold sponges and internal anti-pyretics had but little influence. The pulse varied from 110 to 120 and the respiration from 28 to 32. During the last week the temperature varied from 100 degrees F. to 103 degrees F.,

while the pulse varied from 128 to 150. At no time during his illness did he have hemorrhages excepting those from the mucous membrane of the mouth; and then only upon manipulation. No blood was detected in the feces, either upon microscopical or chemical examination.

Realizing the truth of the statement of Gilbert and Weil that in these cases "the physician's power stops with the making of the diagnosis," purely a symptomatic treatment was instituted.

Unfortunately an autopsy could not be obtained and the bone marrow, therefore, could not be examined. In the absence, however, of any enlargement of the spleen and the meagre lymphatic involvement, we would

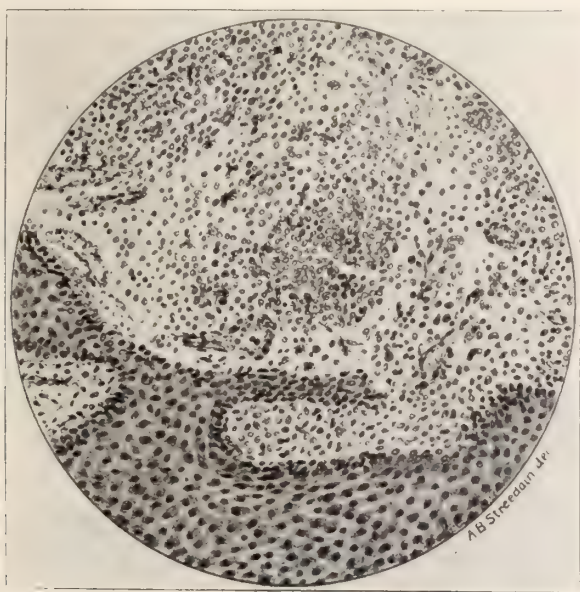


FIG. 3.

be justified in assuming that the chief pathological changes occurred in the bone marrow. Sections are here presented of a portion of the gums removed just prior to the patient's death. (Fig. 2 and Fig. 3.) Though the picture differs in no way from that of lymphoid deposits in other organs of the body, they at least give an idea of the extent to which this process may occur. The sections show large numbers of actively proliferating cells of the lymphocyte type embedded in the meshes of a delicate reticulum. In the words of Dr. Thompson, "The cells in general resemble closely the undifferentiated lymphocytes such as make up the mass of our tumors known as malignant lymphoma, or lymphosarcoma, as they are sometimes called. There is no difference between this growth and the

growth arising in lymphoid tissue which we term malignant lymphoma."¹ The deposit of lymphocytes is so dense as to almost completely obscure the connective tissue fibres between which they have infiltrated. There is no evidence of ulcerations or erosions of the epithelial layers as might be expected through pressure. This may be explained by the fact that the deposit of the lymphocytes is not so pronounced just under the epithelial layer on account of the density of the tissues in this layer of the gums. The tendency is toward the deposit of circumscribed clumps of lymphocytes rather than diffuse areas.

Though the infectious nature of acute lymphatic leukæmia has not been demonstrated, its possibility has been conceded by many leading authorities. Loewit, for instance, in 1900, demonstrated, by a special staining method, peculiar characteristic forms in the lymphocytes, usually in their nuclei, which he took to be unicellular organisms or hemanœbæ. They were found especially in the blood-making organs. Bacteriological examinations of the blood have been frequently made with positive though not constant results. Notwithstanding this, however, the infectious origin seems the most probable. The acute onset, the temperature, the course of the disease and its rapid termination all point to its infectious nature. In our case, as in others that have been reported, the tonsils seem to have played an important role. According to the observation of Pincus, the disease is relatively frequent in children and the earliest symptoms are often referable to the head and neck. Inflammatory processes of the mucous membranes of the mouth, gums and throat are usually the first symptoms noticed. Bradford and Shaw call attention to the fact that the pharyngeal tonsils are enlarged in about one-half of the cases. That the most marked swelling in the cervical region is on the same side as that of the tonsilar enlargement, and that the tonsils are often covered with necrotic or diphtheritic exudate. Pincus corroborates these findings. Ebstein states that when the glands are painful and especially when they coalesce we must not be too hasty in attributing a leukæmic cause to them, since frequently a local irritation producing simple inflammatory swellings may be found, especially in diseases of the mouth.

We question very much if the enlarged lymph nodes in the cervical region in this case were of leukemic origin. The impression at once gained was that they were of inflammatory origin. They were the only nodes that were palpably enlarged though a few small ones were noted in the axilla and groin; they were the same chains that we so often find involved in acute affections of the mouth and throat; the sublingual and submaxillary glands were similarly involved and they were all exquisitely sensitive. It might be claimed that the tonsilar involvement in this case was either a coincidence or a secondary infection. Before any constitutional symptoms were complained of, however, the patient suffered with what he took to be an ordinary sore throat and which was treated as such

at the clinic, and these symptoms remained prominent throughout the course of the disease. Presupposing the infectious origin or acute lymphatic leukemia, these and the observations of others, would lead one to think of the tonsils as one of the probable portals of infection.

REMARKS ON A CHORION-EPITHELIOMA IN A MALE.

By C. FISCH, M. D., St. Louis.

Chorion-epithelioma in connection with pregnancy, has been known for a long time; its peculiar histology and fatally malignant growth have been the incentive for a great number of investigations in all parts of the world, that finally resulted in the now generally accepted opinion of an origin from fetal cells, from the epithelium of the fetal coverings and villi. This epithelium is even in its normal state aggressive as to the tissues of the mother, it destroys maternal tissue, enters into the blood-vessels, and is even in a normal pregnancy carried with the circulation into various organs of the maternal organism, is, for instance, always to be found in the capillaries of the lungs. Under normal conditions, this transplantation does not give rise to tumor formation, the cells are resorbed. It is probable that the resistance of the maternal organism is sufficient, as a rule, to ward off any danger from this parasitism. Under certain conditions this resistance yields, the fetal cells are able to assert their innate proliferative capacity, they are now malignant, and no resistance being met with, use the pabulum offered them, thus destroying vital tissues of the providing organism. This process is usually called a malignant degeneration, a term a priori inadequate, as a process cannot very well be called degenerative that asserts itself as malignant by an admirable capacity of growth and multiplication of cells. On the other side, morphologically and physiologically the cells of a normal chorion and those of a chorion-epithelioma cannot be differentiated, they are absolutely alike and only vary in the degree of the respect they hold towards the tissues, in which they live. It appears to us that in no condition this identity is clearer and easier demonstrated, and I do not agree with Pick and others, that they have seen a transition from normal to malignant fetal epithelium. There is no difference, except that of the varying reaction on the foreign tissue and the degree of liberty, allowing to unfold their proliferative capacity. The very fact that the cells of a chorion-epithelioma are identical with those of the fetal chorion has made possible the recognition of the process. In no transformation the necessity for assuming a favorable condition of the soil for its growth is so clear as here; given this, we will have a tumor with all the qualities of the original tissue, in which it arises. That the proliferative quality of embryonic cells must be greater than that of the

cells of the adult organism, is a well-known fact; but here, as there it is limited by the requirements of the whole, or, rather, by the correlative reaction of one of its constituents on the other. Without this an existence of a complex formation is not thinkable, cells are only parts of a whole, they do not form it. The inhibitory factor is given by the complex, not by the single cells.

Thus, the fetal epithelium, after pregnancy, finds in the maternal body a favorable soil, it is free from its limitation caused by the enrollment into the whole of the developing fetus and avails itself of it by unlimited growth and proliferation. That analoga to this process exist, under conditions that are not considered malignant, is so well known that I need only hint at the findings so often made after abortion.

All of this pointed for a long time to a specific relation of chorion-epithelioma to the female sex. It is only a few years since the attention of pathology was directed to findings in male individuals that could not be explained but as tumors of identical character. Findings of that kind had been made before, but not interpreted correctly under the bias of the conviction that such a tumor could form only in a woman. We owe it to Schlagenhauffer and mainly to Ludwig Pick, enabled by the classic studies of Wilms and others, to be in a position today to accept the existence of chorion-epithelioma in the male sex as a fact. So far, but 21 cases of that character have been described. Nineteen are collected in the latest paper on the subject by R. T. Frank, one was published lately by Dr. Nicholson in St. Louis, and the 21st is the one that makes the material of these remarks. Before entering into a discussion of the interpretation of the origin of this form of chorion-epithelioma, I shall give the history of the case and the findings made in it in short. A detailed description of the latter in Dr. Nicholson's case and in the one observed by me, will be published elsewhere.

The patient, a male, 26 years old, came under the observation of Dr. T. A. Martin for relief for an enlarged right testicle, that had begun to grow for a period of about six months. Taken to a hospital, the physical examination revealed the right testicle a hard mass, with reddish bluish discoloration of the skin, that was movable over it. There was no pain connected with the enlargement, only mechanical inconvenience. Further examination revealed a consolidation of the larger portion of both lungs, only the upper lobes, mainly on the left side, appearing free. Temperature slightly raised, very irregular, cough and bloody sputum. As suspicion of pleuritic effusion was present, a puncture was made, yielding only a small quantity of blood. The general condition was good, examination for tubercle bacilli was negative; altogether nothing pointed to tuberculous infection. Considering the general condition and on the urgent request of the patient, it was thought

justifiable to remove the testicle. This was done Feb. 21. The patient did not suffer any shock, and remained in the same condition as before. The testicle showed on section microscopically a picture that at once reminded of a syncytioma. Fields of clotted blood with areas of a whitish color was all that could be seen. No normal portions of the organ could be made out, testicle and epididymis formed one mass, of the same character, only slightly marked off from each other. The chord was normal. It may be said here, shortly, that the microscopic examination showed a typical chorion-epithelioma.

After a few weeks in which the condition of the patient had not changed markedly, although emaciation began to be apparent, dyspnea began to be present, and suddenly a paralysis of the right arm set in. This was followed by paralysis of the right leg, deviation of the tongue and enlarged right pupil. There was later on interference with speech, blood appeared in the urine, that otherwise was normal, the emaciation became intense, pulse and respiration rapid, hectic temperature, at times, no interference with digestion. Convulsive spastic attacks occurred repeatedly, and the patient died March 28th. The autopsy made immediately after death confirmed the diagnosis made during life, metastatization of the chorion-epithelioma extensively into the lungs and kidney, the subperitoneal periaortic lymph glands, bronchial and tracheal glands, one tumor under the scalp of the forehead, a large metastasis in the white substance of the left posterior, frontal lobe, encroaching on the gray matter of the posterior or third frontal convolution. A small tumor was found in the neighborhood of the opening of the carotid canal on the right petrosus. Liver, spleen and the other viscera were not affected.

The findings resemble those made in a number of other similar cases, and are identical with those found in cases of death from chorion-epithelioma after pregnancy. The histologic structure of the tumor and the character of the lesions are the same, down to the finest cystologic details, even to the ciliary fringe of the syncytium masses. As I cannot enter here into a more detailed description of the details of the findings made, it is sufficient to state that the case agreed in all respects with what we knew before about this form of malignant tumors. Since the correct interpretation of this form of disease is only of recent date, it is not unlikely that a number of patients have gone to the grave with another diagnosis.

The question put by chorion-epithelioma in the male is that of its origin. The two cases described in these remarks are very characteristic in this direction. Dr. Nicholson's is typical; here we had to deal with a retro-peritoneal tumor of large size, in most of its extent a typical teratoma, containing in its mass all the varieties of tissue forma-

tions of the human organism, including organoid structures and even organs (spinal or sympathetic ganglia). One of these constituents, the one that represented the cells of the chorion-epithelioma, became malignant, as the views are, formed metastases in vitally important organs and caused death. That this is not a specific privilege of the chorion-epithelioma is shown by some cases, in which the metastases from such a teratoma contained all or at least a number of the tissue varieties present in the primary tumor. In other cases the tumor consisted entirely of chorion-epithelioma and of nothing else, as in one that Longcope described. The case that I have been describing in this respect is exceedingly interesting. In the first place, it is possible to demonstrate in certain portions of the primary tumor as well as of the metastasis cells, that are not chorionic, but well differentiated into cubical and cylindrical rows of cells with a fixed position of the nucleus and forming often typical small cyst-like arrangements. They in all respects resemble the neuro-epithelium of the fetus in its earliest stage of its development, and what is more, I have been able, like Pick has also shown, to see that there are gradual transitions between these cells and chorion-epithelium. The typical arrangements and structure appears more definitely even in the metastases, than in the primary tumor. The near relation of the two formations to each other is clear. In the second place, while to a superficial examination the primary tumor showed only the structure of a chorion-epithelioma, I have succeeded after a thorough investigation of numerous portions to demonstrate a small area, where a typical teratomatous condition obtained, besides the chorion cells, cartilage cells, embryonic connective tissue and columnar ciliated epithelial cysts and canals being present. Similar observations have been made before, they lead us to the conclusion, that chorion-epithelioma is a tumor, either a constituent of a teratoma, or a tumor in which the teratomatous portion is reduced to a minimum by the excessive proliferation of the former. Whether this is so in all cases is doubtful, but even if it should not be, it would not change the conclusion that must be drawn from the study of the character of these tumors.

While we can assume that in the chorion-epithelioma following pregnancy, the tumor originates from the fetal epithelium either due to predisposing conditions of the maternal tissues or by a specific alteration of the biologic character of the epithelium itself (this is, however, not very probable on the basis of remarks made before), such an interpretation fails in the male tumor. Here we must look for another explanation, and that is given by the consideration of the frequently teratomatous combination.

It would be impossible to detail here the views entertained today about the origin of teratomata. There are still voices that explain it by mys-

terious metaplastic processes of adult tissue cells. It must be said above all, that, neither for this nor the opposite opinion positive proof can be brought. It must be insisted on the absolute absence of proof, that fully differentiated cells can return to a condition, in which they are able to regenerate all varieties of tissue, of which the adult organism is composed. I do not forget that positive proof seems to have been brought for such metaplasia between mesodermic cells and ectodermic structures. Aside from the fact that these observations are absolutely isolated, and to my knowledge have not been confirmed by others, they would and could not mean that we must induce from these the possibility that a connective tissue-cell or an epithelial cell of the adult individual would be able under any condition to build up by proliferating formations, in many respects suggesting the constitution of the grown organism. As far as our knowledge has gone, and as far as observation and experiment can be adduced in confirmation, we must, today, date back the origin of all of these tumors, to a period of development, at which the differentiability of the single embryonic cells allowed of the independent development of a whole or partial individual, or at least of the activation of an attempt, to produce all of the tissue-differentiation that the cells in this complex combination undergo. Experiments have shown that blastomeres are able to produce when separated from the connection with their companions, normal or abnormal or monstrous individuals or masses of tissues, not organized, but containing all of the tissue varieties of the normal organism. Misplacement and inclusion of such blastomeres during fetal development at the first stages of it, would fully account for the formation of teratomata.

The assumption that they and most all tumors have their anlage formed during the fetal development, presupposes the possibility that transposed fetal cells remain in a dormant condition for a long time. Although they may begin to grow and proliferate during the intrauterine period, they, as a rule, make themselves visible only after birth and in many cases after a longer or shorter number of years. Cases have been reported of typical organized teratomata, that began to grow, after the 50 years of life was passed. This dormancy of cells is just now widely discussed. Direct evidence for the one or the other side has not been obtained. The experiments performed by injecting adult animals with embryonal cells of the same species, that more or less resulted negative as to growth and especially as to tumor formation mean nothing for either question, as we so far know nothing about the factors conditioning the growth of a tumor. What we know is mainly that tumors even of microscopical size are always independent formations, nowhere genetically connected with the homologous tissue and never including the latter into the formation of tumor cells. For skin-carcinomata, it has been demonstrated that very frequently small

tumors exist, microscopical in size, that never had been noticed during life; they have remained "anlagen," never meeting the conditions that would allow them to assert their proliferative capacity. It is impossible here to discuss the material so far accumulated that in this way accounts for the origin of tumors; it is very great, and, although only in a circumstantial way, conclusive. The opinion of changes of fully differentiated tissue into tumor tissue is on the wane, the more exact the investigations become and more importance is attached to the exclusion of mistakes in observation, the more the instances of tumorous metaplasia dwindle together. For tumors, today, the doctrine is that they are tumors from the beginning, grow only out of their own cells and never have a genetic relation to the homologous cells adjoining them, nor have the capacity of making the latter change into tumor cells.

It is possible that an extensive and scrutinizing investigation of fetal tissues, especially at those places where later in life tumors occur with predilection, will bring evidence more direct than the already existing circumstantial proof. Chorion-epithelioma has taught a great deal in confirmation of this view. It has to a degree encouraged the way in which lately the tumor problem is attacked.

A CASE OF ANOREXIA NERVOSA IN AN INFANT.

By ALFRED FRIEDLANDER, M. D., Cincinnati, O.

Perversion of appetite and want of appetite are common manifestations in childhood. In malnourished, nervous, finicky children, particularly in children of the so-called better classes of society, it is not uncommon to find instances of perverted appetite. There is the desire for excessive quantities of sweets and starchy foods, and the absolute refusal to take more wholesome articles of diet. Or, the child is willing to eat meat in quantities, but refuses vegetables, milk, etc. Such cases are particularly often found from the second to the seventh or eighth years of life.

During adolescence, cases of anorexia are not uncommonly found, particularly in girls. These girls are usually chlorotic, with an over-development of the intellectual and emotional side. Physically, they are underdeveloped and mal-nourished.

But cases of true anorexia nervosa, as a distinct neurosis, without demonstrable organic abnormality, are much rarer, especially in early childhood. At this time of life, it is true that one form of perverted appetite, which must also be considered as a habit neurosis, is very common. This is the neurosis to which the name of pica, or dirt eating, is given. But while it is true that in this condition there is the constant desire for the taking of unwholesome, even disgusting materials, it is charac-

teristic that other more normal articles of diet are not refused. Indeed the appetite may remain excellent, and the general condition of the patient be very good.

In true anorexia nervosa, however, there is an absolute refusal to take food of any sort. This voluntary starvation may go on for considerable periods of time, with resulting emaciation and great prostration. Indeed, cases of this sort may end fatally, and quite a few fatal cases have been recorded in the literature. Most of these cases have occurred in persons between 15 and 25 years of age, and a considerable majority of all the cases have occurred in women. There has naturally been much discussion as to the pathogenesis of the condition. It appears settled that we must regard the disease as a neurosis, whose etiology remains absolutely obscure. That it is allied to, perhaps a manifestation of, hysteria would appear to be probable. No organic basis for it has been found, and in the autopsies on the fatally ending cases (naturally few in number), the examinations have invariably been negative.

In infancy, the condition—especially in its severer forms—is very rare. It is true that at the time of weaning, many infants refuse to take food for short periods of time, and the transition to food other than breast milk is sometimes accomplished only by the exercise of much patience and perseverance. In most of these cases, starvation for shorter or longer periods is a sovereign remedy, and ordinarily within a few days, the process of weaning is successfully accomplished. It happens in some cases, however, that at the time of weaning there is a true anorexia, which may persist for some time, occasionally leading to the most serious results. The following case is an instance in point and its rarity would appear to justify its report:

G. W., male, age 1 year; the first and only child. The mother, who must be classed as decidedly neurotic, is otherwise perfectly healthy. The father admits having had syphilis many years before his marriage. The child itself shows absolutely no signs of hereditary lues, nor has it shown any at any time since birth. Except for an undescended testis it shows no abnormality. It was entirely breast fed for a year and developed normally. Dentition began at the age of six months, and at the age of a year, the child had eight teeth. The weight at this time was 25 pounds. The bodily functions were all normal. There had never been any tendency to gastro-enteric troubles; the child had nursed regularly, at the proper intervals. The mental development was distinctly above the average, indeed the child might easily be classed as somewhat precocious.

From the time that the child was nine months old, attempts had been made—at my suggestion—to add some artificial food to the dietary. These attempts had not been successful, the child had invariably refused to take

anything but the breast milk. It would, however, always take water from a cup. When the mother was finally prevailed upon to allow the child to be weaned (it was then just a year old) a trained nurse was called in, who assumed sole charge of the child. Various foods were offered, all of which were refused. The child was allowed to nurse only once a day. This attempt at weaning was persisted in for a week, without success. After consultation with Dr. F. Forchheimer, it was then decided to remove the child to a hospital to try the effect of more prolonged starvation. This was accordingly done. For four days and nights, the child was given nothing by mouth, eight ounces of normal saline solution being given by rectum three times in the twenty-four hours. At the end of this period various foods were offered the child: milk, cocoa, cereals, gruels, etc. Hot foods, ice cold foods, luke warm mixtures, sweet mixtures of many kinds were tried, all of which the child refused to touch. Water was, however, eagerly taken. At this time, the child weighed twenty-two pounds. The urine contained neither albumen nor sugar, but acetone was present in considerable amount. As is well known, the acetonuria of starvation is a phenomenon very frequently observed. Later, when the child received nourishment, the acetone promptly disappeared.

Forced feeding was now instituted, eight ounces of a milk and barley water mixture being given four times in the twenty-four hours by gavage. During its stay in the hospital, the child, even during its starvation period, appeared perfectly contented, crawled about the floor of its room, played with its toys, enjoyed its daily outdoor ride, and slept well. While the gavage was being used, the attempt was constantly made to induce the child to take food, but always without success, except that on one occasion it did take a small piece of fried bacon. At the end of a week, the child was taken home, the gavage being continued. The mother insisted that she be allowed to nurse the child, and as the breasts were still secreting, the permission was given. But the child absolutely refused to nurse. At this time, bovine, in teaspoonful doses, undiluted, was offered, and was promptly taken. Freshly pressed beef juice was, however, absolutely refused. The attempts to feed the child naturally, were kept up continuously. At the end of another week, the child suddenly developed a fondness for farina. While it took the bovine from a spoon, it refused to take the cereal in this way, and it was therefore given on a cracker. Within a day or so, crackers were taken, also. After another week, it took various cereals, and some milk, so that the gavage was discontinued. Thereafter, progress was rapid, and in another month, the child was taking various foods naturally and with appetite, had fully recovered its strength, and had gained four pounds in weight. It has remained perfectly well since this time.

The history and course of this case are strikingly like many others reported in the literature. It is, however, most unusual to find as severe a case as this in so young a child. It is not at all probable that the lues of the father could stand in etiological relation to this affection in the child. A point of much more importance would appear to be the neurotic tendency, inherited from the mother. Why such a neurosis should develop, with such intensity at the time of weaning, it is not possible to say. The case has been reported merely as being of some clinical interest, and without any attempt to explain the mystery of the origin of what is certainly a habit neurosis.

ABNORMAL RETENTION OF THE DEAD OVUM.

BY HUGO EHRENFEST, M. D., St. Louis.

As a rule the death of the embryo or fetus within a few days is followed by attempts of the uterus to rid itself of the ovum. A less prompt expulsion is not rare. A young ovum may be retained for several weeks and then be expelled in the form of a bloody or fleshy mole. A retention of more than six weeks is uncommon and must be regarded as abnormal. But even such cases are not rare enough to justify a record of each observation in literature. In the following a description is given of two instances of abnormal retention of the dead ovum, because they seem to throw some light on the still obscure etiology of this peculiar condition and offer some interesting diagnostic points.

The uterine contractions, which usually soon follow the death of the fetus, commonly are considered due to the fact that the dead ovum within the uterine cavity acts like a foreign body. The onset of labor at full term is explained by some authorities in the same manner. They claim that the progressive necrosis in the decidua and in a portion of the chorionic villi, as pregnancy approaches its normal end, gradually separates the ovum from the uterus and transforms it into a "foreign body." To be sure, this theory of the onset of labor pains is not generally accepted and certainly cannot be considered the only cause of labor. Schaeffer (Winckel's Handbuch d. Geburtsh. 1904. I. B. 2 H., p. 868), in discussing the modern conception of this problem concludes that the ecbolic action of the uterus at the normal end of pregnancy begins as the cumulative result of several factors, among them the coagulation necrosis in the decidua and fetal placenta. In the opinion of most authorities, however, the most important role in the causation of labor at full term is played by certain nerve ganglia located in and near the cervix. It is assumed that these ganglia are irritated by the passive stretching of the upper portion of the cervical canal and by direct pressure of the presenting fetal part, when the fetus has reached

a certain size. However, this theory of the causation of uterine contractions is not adequate to account for the uterine contractions in a spontaneous abortion during the earlier months of pregnancy. The old "foreign body" theory, therefore, has remained the one still almost generally accepted for the explanation of the expulsion of the dead ovum in cases of abortion.

It is the rule, that the injection into the pregnant uterus of certain fluids such as glycerine, tincture of iodine, etc., or the introduction of a bougie, a strip of gauze or any other foreign body, is followed promptly by the ecbotic action of the uterus and results in the interruption of pregnancy. Of course, for such procedures a direct irritation of those ganglia in the cervix cannot be positively excluded, but it undoubtedly seems more plausible that in these instances the uterine contractions are brought on as the result of the presence of a foreign body in the uterine cavity. The foreign body theory necessarily assumes a distinct sensibility or irritability of the uterine cavity in order to explain the transmission of an intrauterine mechanical irritation to those central or local nerve centers which control the contractions of the pregnant uterus. A lack of such an irritability will then account for the not uncommon observation that the pregnant uterus may prove refractory to even grave insults, such as the introduction of gauze packing, or of instruments. A lack of normal irritability is also considered by Graefe (Ruge-Festschrift, 1896, p. 38) the primary cause of a pathologic retention of the ovum after the death of the fetus. I consider the following case valuable proof for this latter theory.

Case I.

Mrs. L., 34 years old, first seen May 25, 1903. She gives the following history: Has given birth to six children, the last four years ago. Menstruation always regular; last regular menstruation began September 1, 1902. At about October 20th a vaginal discharge with slight admixture of blood appears. This discharge persists for about two to three weeks. She consults a gynecologist who has attended her in previous confinements. He positively excludes a pregnancy. Beginning of December she once more sees this physician because she is inclined to believe that she is pregnant. He again assures her most positively that she is not pregnant, and in order to prove to her satisfaction that she is mistaken, he introduces a uterine sound. Five days later she has a profuse hemorrhage, which is stopped by another physician, the gynecologist being out of town. Shortly afterwards her breasts begin to swell and about the middle of February (22 to 23 weeks after last regular menstruation) she feels fetal movements. She is examined by the gynecologist and another physician, who is called into consultation, and

is informed that she is not pregnant and that her "fetal movements" are but a product of her imagination. Patient is convinced that both physicians are mistaken. Some time in April (about five to six weeks ago) the fetal movements suddenly cease. Patient once more calls the gynecologist, who, in consultation with another specialist, informs patient in a most emphatic form that she is mistaken and certainly is not pregnant. These same physicians see the patient once more on May 23d (two days ago) and repeat their assurance. At the same time the patient is advised to submit to an operation for her large umbilical hernia. Such an operation then would help to clear up the cause of her present condition, which possibly is due to some ovarian trouble. Patient flatly refuses this operation, because she is convinced that she is pregnant and carries a dead child in her uterus. Her family physician is consulted and confirms her in this belief. He suggests to the patient to consult me.

I see the patient May 25, 1903, at 5 p. m. Of the findings only the following seem of interest: Patient is extremely stout. The breasts contain a large amount of colostrum. An umbilical hernia of about the size of a fist lies distinctly to left of middle line of body, so that one immediately gets the impression that the right half of the abdomen is more extended than the left. Abdominal walls excessively thick. Palpation rather unsatisfactory. Apparently there is a greater resistance on the right side of abdomen. No distinct tumor can be palpated. Percussion readily reveals an area of dullness ending about four inches below ensiform process, to left in left mammillary line, to right in middle axillary line, reaching down into the pelvis. Auscultation negative. No fetal heart sounds can be detected. In spite of the positive assurance of the patient that she never had any fever, temperature is found to be 100, pulse 76. In order to settle, if possible, the differential diagnosis between ovarian cyst and pregnancy an attempt is made to cause the soft tumor to contract. The abdomen is vigorously massaged for about six to eight minutes when suddenly the indistinct resistance in the right side of the abdomen transforms into a hard tumor of approximately the size, previously outlined by percussion. This contraction, the fact that the palpable tumor corresponds in size and shape to a uterus pregnant thirty weeks or a little more, the history of the case as given by the patient and the slight rise in temperature, induce me to make the positive diagnosis, viz.: Intra-uterine pregnancy, with retention of a dead fetus for about five to six weeks. Before I leave the patient's room she has another uterine contraction, this time distinctly felt by her. Since patient is near the normal end of pregnancy, two contractions have actually occurred, and no indication for immediate interference is present, I advise to wait a day or two for further developments.

Next morning at 5 A. M. patient has a few hard labor pains. At

6:30 membranes rupture and a large quantity of fluid escapes, of chocolate color, containing some blood. Labor pains varying in strength continue all day. At 4 P. M. cervical canal admits four fingers. At 8 P. M. canal is completely opened, right arm of fetus has prolapsed. Delivery *conduplicato corpore* seems impossible. Therefore, at 9 P. M. patient is anesthetized for a version. The macerated fetus is found in such a position that its feet cannot be reached. Chest and neck are presenting. The neck is severed with large scissors and first the fetal trunk, then the head extracted. Placenta is spontaneously expelled forty-five minutes *post partum*. Uterus contracts well. Recovery undisturbed.

Fetus is in advanced stage of maceration; as far as can be ascertained, its length is 35 to 40 cms. Placenta is of size of the palm of a man's hand, thick, pale in color and contains large white infarcts. Membranes are complete, very friable and of a brownish-green color.

The chief interest of this case undoubtedly lies in the fact that the introduction of a sound into the uterus during the fourth month of pregnancy causes a hemorrhage, but not an interruption of pregnancy. This uncommon occurrence can satisfactorily be explained only with a lack of normal irritability of this uterus and it is extremely suggestive that this deficiency also is responsible for the retention of the dead fetus for about six weeks. The expulsion of the fetus at that time, in my belief, is due to two causes: to the uterine contractions resulting from the massage and the proximity of the normal end of pregnancy. The interest of this case from the standpoint of diagnosis is evident.

Features worthy of note are presented by the following other case of abnormal retention of a dead ovum.

Case. II.

Mrs. N. 26 years old. Two partus at full term, the last August 19, 1904. Patient has been suffering for several years from typical disturbances caused by a retroflexed uterus, which have become more annoying after the last confinement. Therefore, a vaginal vesicofixation and perineo-plastic is performed on April 3, 1905. Recovery undisturbed. Menstruation after operation regular. On July 15, 1905, patient consults me again, because her last menstruation, on July 8th, has been very scanty and has lasted only three days instead of five to six as usually. On examination uterus is found approximately of normal size in complete antiversion. Patient is informed that there is no sign of pregnancy present. She then leaves town, but remains in doubt concerning her condition, because she has some peculiar longings for food exactly such as she had in the previous pregnancies. Her fears are finally dispelled when the August menstruation appears at right time, of normal character and duration. *Menstruation from now on perfect*

ly regular and normal. All during the summer patient does not feel "just exactly well." Her appetite is poor, there always is some gastric disturbance, but never real nausea or vomiting. She belches a great deal and very often has a bad taste in her mouth. Later in fall she often has chilly sensations; in November and December frequent attacks of headache. Soon after the operation a whitish vaginal discharge appears, which gradually grows worse. In August and September it is quite profuse and of a greenish color; at about November it becomes more reddish-brown and has a very offensive odor. Since end of December this discharge is extremely annoying. Permanganate douches are used, but practically without effect.

On January 25, 1906, just twenty-nine or possibly thirty days after her last menstruation, she begins to flow. On the third day this discharge becomes brown in color. On January 31st, while playing with her child, she is hit in the abdomen by a ball. Later in the evening of the same day she has a few severe cramping pains in her lower abdomen. The flow again becomes bloody and free. On February 1st, all during the day hemorrhage is free; in the evening cramping pains start again, which early next morning are labor-like in character. At about 7 A. M. (February 2, 1906) a large clot is expelled containing a complete ovum. Pains cease promptly. On February 14th the bloody discharge has disappeared. Uterus is found slightly larger than normal, in perfect antiversion. Nowhere tenderness to pressure. Further recovery uninterrupted. There was no rise of temperature.

The expelled ovum is a typical flesh-mole of pear shape, two inches long. A longitudinal section opens a small amniotic cavity of about the size of a pea. No trace is left of a fetus. The thick wall of the mole consists of coagulated blood, containing numerous small white particles which look like concrements of lime salts. Microscopical sections show a large number of chorionic villi of normal appearance. Both the syncytial and the Langhans cells layers of most villi are distinctly visible.

The expulsion of an ovum in this case certainly came as a surprise. Since the patient did not consult me from July 15, 1905, until February 2, 1906, a diagnosis of pregnancy for obvious reasons has not been made, but it is more than doubtful whether this diagnosis could have been made. The uterus would have been found somewhat larger than normal; however, in the presence of a regular menstruation of normal type, a pregnancy hardly would even have been suspected. From a very large number of cases of abnormal retention of the dead ovum compiled by Ernst Frankel (*Volkmann. Klin. Vortr.*, No. 351, 1903), it can be seen that a regular menstruation during the period of retention is extremely rare. The interesting fact may be pointed out in this con-

nection that this case proves that ovulation may go on while an ovum is present in the uterine cavity.

In consideration of the history and symptoms, quoted above, no doubt is left that the ovum has died approximately in the beginning of August and was retained for about six months. The presence of normal chorionic villi in this ovum does not speak against such an assumption; on the contrary, it is a condition almost typical of retention. Even in ova which were retained for more than a year, chorionic villi of practically normal appearance have been found. On this very fact a theory is based which satisfactorily explains this peculiar phenomenon of pathologic retention, at least in some instances. The death of a very young fetus causes only little disturbance in the total circulatory area of the ovisac which, in comparison, is so much larger. The resulting necrosis may be limited to a small portion of the chorionic villi. The rest of the chorion remains intact and, at least for some time, continues its vegetative function. Thus the ovum, in spite of the death of the fetus, is still partially alive and is not a "foreign body." In the opinion of Schaeffer the endometrium gradually is restored, the area of attachment of the ovum slowly reduced until the first menstruation leads to the complete detachment and prompt expulsion of the ovum. Many writers, in a similar manner, claim that the final expulsion of a retained ovum is brought about by the combined effect of the "foreign body" irritation *plus* the temporary uterine congestion at the time of an expected menstruation. The second case, in my opinion, furnishes valuable support for this theory. In this case menstruation continued regularly, hence there cannot be any doubt from the history, that the ovum, which was retained for six months, actually was expelled in this particular instance, in connection with a menstruation.

THE SUBMUCOUS RESECTION OF THE NASAL SEPTUM FOR THE CORRECTION OF ITS DEFORMITIES.

BY WILLIAM E. SAUER, M. D., St. Louis.

Although rhinologic surgery has made remarkable advancement in recent years, possibly no operative procedure has been taken up with as much enthusiasm by rhinologists as the submucous resection of the septum. There have been a great many contributions made to the subject within the last five years. There has also been quite a discussion as to whom the credit of the operation is due. Killian, Hajeck, Menzel of Europe and Freer and White of this country have been most active in placing this operation on a scientific basis.

Briefly, the operation consists of making an incision through the mucous covering on one side of the septum at or near the free margin

of the quadrilateral cartilage. This incision is carried through the cartilage, being careful not to cut through the mucous covering on the other side. The cartilage is then separated from its coverings on both sides through the incision. After this has been done the cartilage is removed. If the bony septum is deviated it is treated in the same manner. When enough of the cartilage and bone has been removed the cut surfaces are brought together and held in place by tampons.

As for the indication for this operation, all authors are not agreed. Killian and Freer believe all deformities of the septum requiring operation should be done submucously. Douglas, Sluder and a number of others believe the method of Ash Gleason or some modification to be more suitable in some cases.

The age limits for the operation have not been fixed. Killian states that owing to the fact that we do not know how much of a part the septum plays in the development of the nose, this operation should not be done on children under twelve years of age. Stolte has performed this operation on a child of five years. Moeller has operated on three children under ten. Freer has operated on twenty-seven children between seven and fifteen years. The latter believes the operation to be suitable for children at all ages. The upper age limit depends entirely on the necessity for such a step. While it is true that a number of submucous resections have been done on cases past fifty, it is a well known fact that old people do not bear nose operations nearly so well as the young; so this operation should be done on people past fifty with the greatest caution. Among the contraindications for this operation are acute rhinitis, syphilis and other conditions contraindicating operation on other parts of the body. Killian strongly advises this operation in the early stages of tuberculosis of the lungs, as he believes the early establishment of free nasal respiration in a beginning tuberculosis can not be over estimated and should precede any other form of treatment.

In order to avoid sepsis the operation must be done under the rules of aseptic surgery. The technic should be as faultless as in an abdominal section. The rules advocated by Killian are that the face of the patient should be covered with a mixture of prepared chalk and water, which is allowed to dry and then is washed off with soap and water in order to remove the fat in the skin. The nasal vestibule is thoroughly cleaned. The vibrissæ are closely clipped. When there is no suppuration in the sinuses the douche is dispensed with. If there is a sinus suppuration the nasal passages are carefully irrigated with normal saline solution. The head of the patient is covered with a sterile towel so that the operator can move the head in any desired position.

As to the position of the patient during the operation and the anesthetic employed, the different operators vary. Killian always operates

in the upright position, the head of the patient being supported by an assistant. Freer and White usually operate in the recumbent position. The advantage claimed for the recumbent position is that the fainting, which sometimes occurs, is overcome and that the operation can be done under a general anesthetic. During the past two years I have made it a rule to give the patient a half ounce to an ounce of whiskey with a thirtieth of strychnine just prior to beginning the operation. Since that time I have not had a single case of faint and the operations were all done in the sitting posture. Prior to that time I was frequently interrupted by the patient becoming faint and the operation had to be completed in the recumbent position. The advantages of the upright or rhinologic position are so evident that I shall not detail them.

Anesthesia is produced by rubbing the mucous membrane on both sides of the septum with a cotton swab dipped into a 20 per cent. solution of cocaine. Adrenalin chloride is applied in the same manner in order to make the parts as anemic as possible. If the deviation of the septum begins far forward I inject a few drops of a 1 per cent. solution of cocaine under the muco-cutaneum on each side of the septum. Recently I have employed the Brown cocaine-suprarenen tablet as advised by Killian and found the bleeding to be decidedly less. I have never employed the cocaine in powder form as advised by Freer. His method is to first apply the adrenalin and then apply the cocaine powder on a moist cotton swab. He applies this frequently during the operation, claiming a more complete anesthesia and he has never seen a noteworthy cocaine intoxication from this method. Just where to make the incision through the muco-perichondrium has been a much discussed point. The majority of operators make the incision on the convex side of the septum. Von Eichen always makes the incision on the left side, while Ballenger does the same when he makes his incision well forward through the muco-cutaneous membrane as advocated by Hajeck and Menzel. The latter always make their incision at the free margin of the quadrilateral cartilage. Killian makes his incision about one-half centimeter posterior to this. (As shown in Fig. 1.) Both Hajeck and Killian's incisions are curved, beginning at the floor of the nose and extending forward and upward. The incision of Killian is L-shaped, making a flap of the muco-perichondrium, which is pushed up out of the way, giving a clear open view of the posterior part of the septum. Both these incisions have their advantages and disadvantages. In both the Killian and Hajeck incisions there remains a pocket between the two muco-perichondrial surface after the cartilage and bone have been removed. The chances for infection are much greater, owing to insufficient drainage of this pocket. In a personal interview Killian stated that no harm was done when one side of the muco-perichondrium was

accidentally perforated, in fact, it was often an advantage, especially when much of the bone was removed. In the Freer incision there is no pocket formed, but the healing is somewhat delayed as this must necessarily be by granulation.

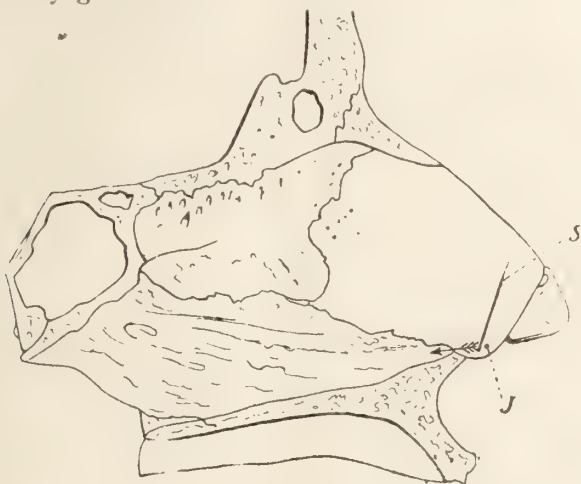


FIG. 1.

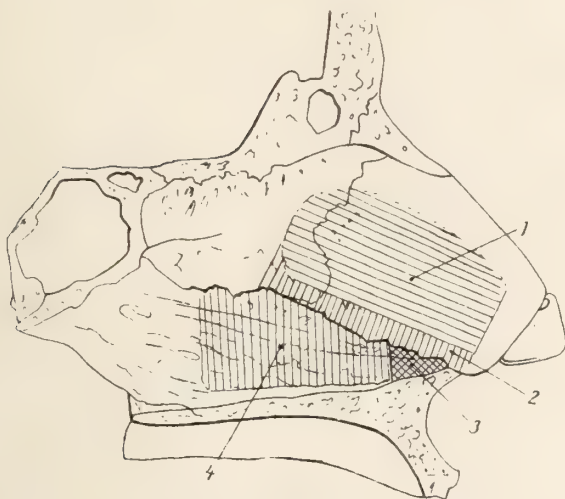


FIG. 2.

The instrumentarium for the operation has already assumed enormous proportions. Almost every operator has devised some instrument for which special advantages are claimed. In reality few instruments are required. The separation of the muco-perichondrium has received much attention. If the first incision has been made through the muco-perichondrium no difficulty will be experienced in separating it

from the cartilage. Great care, however, must be exercised in cutting through the cartilage, in order not to cut through the muco-perichondrium on the other side, otherwise a permanent perforation may be the result. After separating the cartilage from its coverings, which may be done with an ordinary grooved director, however, the Killian or Hajeck elevators facilitate matters. The cartilage can be removed in one piece by the swivel knife devised by Ballenger, which has been a great aid in the operation, as there is much time saved by its use. The removal of the bone is not so easy, but with suitable forceps, chisels and burs as little or as much as necessary can be removed without much trouble. The mucous coverings should be brought in position from time to time to see if sufficient bone and cartilage has been removed. The mucous coverings should be placed exactly in the median line. When enough bone and cartilage have been removed the cut surfaces of the muco-perichondrium should be placed in apposition and held in place by packing the nasal passages with gauze or sterile cotton. The majority of operators pack both nasal cavities with gauze in successive layers. This packing is so made that the muco-perichondrial surfaces are firmly pressed together. Freer packs only one side while Zamiko does not pack at all. The question of packing after nose operations deserves special consideration. A personal experience has led me to believe that there is possibly nothing as uncomfortable or as disagreeable as having both nasal passages packed for even twenty-four hours. But in this operation the packing is allowed to remain for forty-eight hours and even longer. When both nasal passages are packed not only is there great difficulty in swallowing experienced, but during each act the ear becomes inflated to such an extent that the pressure within the ear becomes almost unbearable. Frequently the soft palate becomes pressed against the post-pharyngeal wall and remains caught there, adding to the discomfort. Forty-eight hours spent with both nasal passages packed will not be remembered with much pleasure and I think if some of the operators who so strongly advise firmly packing both nasal passages had this tried on themselves there would be quite a change of opinion. The packing of only one nostril as advocated by Freer has the disadvantage that the septum being movable it is pushed over to the other side and comes in contact with the turbinate and as a result both sides are obstructed, besides there is danger of the septum and the turbinate becoming adherent. In order to overcome this I have in my recent cases introduced a long Ashe or Mayer nasal splint into the concave side and packed the convex side with gauze. This allows the patient one side to breath through. Should the side become occluded with blood or secretion I allow the patient to irrigate gently with normal salt solution. In this way the patient experiences no difficulty in swallowing and there

is no disagreeable pressure in the ear and the patient rests decidedly more comfortably. He does not lie awake for forty-eight hours waiting for the time to come when the packing can be removed, nor does he return to the office a physical wreck, as is often the case after both nasal passages have been packed for forty-eight hours. Not to pack at all as advocated by Zamiko would certainly be ideal, but how he can be sure that there may not be a serious hemorrhage, or at least a hemorrhage between the two muco-perichondrial surfaces as sometimes occurs even after both sides are packed, I fail to see. Yet he claims he has never had to pack the nose after this operation.

I have found that after removing the packing a reaction sometimes takes place and both nasal passages are apt to become occluded. This swelling may occlude the nostrils for several days. Recently I have observed that by having the patient wear two comfortably fitting Ashe nasal splints for two or three days the nose remains free and the patient is decidedly more comfortable. The patient can usually be dismissed after a week or ten days. This feature alone is a decided improvement over the crushing operation of Ashe and others. Another point is the certainty of the result. Only a single recurrence is reported by Freer. The case was that of a child in which not enough of the cartilage had been removed, so that when seen eighteen months later the cartilaginous part of the deflection was found to be one-half reformed. There was no reappearance of the bony obstruction. Menzel and Mueller emphasize the fact that not the entire cartilage should be removed from just beneath the bridge of the nose, but that a strip from one to one and a half centimeters should remain, owing to the danger of a sinking in of this portion of the nose. Freer believes that a ridge one-half centimeter in depth to be sufficient to insure against any sinking, providing the cartilage be smoothly cut and not torn out.

The principal advantages over other methods for correcting deformities of the septum are:

1. The certainty of the result.
2. The short duration of the after treatment.
3. More breathing space is obtained by this operation than by any other.
4. No second operation is ever necessary as is frequently the case when the crushing operation is employed.

AN AID TO THE TREATMENT OF EPIDIDYMITIS.

BY H. MCC. JOHNSON, M. D., St. Louis, Mo.

The greatest inconvenience that gonorrhœal epididymitis usually causes is due to suffering dependent upon pain and swelling, for it is very rare indeed that these cases suppurate. It is true that suppuration follows inflammation of the epididymis due to other etiological factors, being quite frequently seen when the condition supervenes upon inflammation of the bladder caused by pyogenic organisms.

For gonorrhœal cases, and even in orcho-epididymitis occurring during the course of mumps, if we relieve pain and quickly reduce swelling we accomplish the chief indications.

The treatment generally recommended for these conditions, such as rest in bed with elevation and more or less fixation of the testicles, combined with local applications of various kinds (lotions, poultices, ice, leeches, etc.), while very serviceable, often fails for some days to relieve the pain, and generally it is a week or more before the patient can return to his regular occupation.

The ordinary procedure is to strap the testicle with rubber adhesive plaster after the swelling has begun to subside, in order to allow the patient to be up and about, the straps being applied in a circular, then in a longitudinal direction. Most authors advise against strapping an acute epididymitis in the beginning of the attack. It has been urged that straps snugly applied in this way at the commencement of the acute stage threaten the integrity of the organ through strangulation; and so it may.

It has seemed to me that the action of the straps in completing the cure of a subsiding epididymitis was due to the retention of heat and moisture (poultice action), and if we could add rest in some manner, without constriction, the method would be applicable to acute cases in the very beginning.

About two years ago, meeting with a patient who had acute epididymitis, and who was obliged to continue at his work, it occurred to me to make use of the method described below; this gave such immediate relief that since that time it has been a regular procedure in my practice for treating this condition—and with most gratifying results.

The parts should first be shaved. With the patient lying upon the back one end of a strap of zinc oxide adhesive plaster, two and a half to three inches wide, is applied to the lower abdomen, from one and one-half to two inches from the median line. The strap, face upwards, is taken around and under the scrotum, elevating the testicles to a level at least as high as the peno-pubic angle and forming, as it were, a sling. The other end of the plaster passes up on the opposite side of the median line of the abdomen (Fig. 1). A second strap is applied in the same manner as the

first, overlapping the latter at its median border by about one inch. The straps are now neatly adjusted about the scrotum. A few short straps are gently passed crosswise over the anterior portion of the scrotum, just below the peno-scrotal angle, to completely cover in the testicles and have them enclosed by the plaster, and one crosswise above the penis to aid in holding the longitudinal straps in place (Fig. 2). It is intended to make no pressure whatever, and care should be taken that none is made. Both testicles are included in the bandage whether both, or one, are inflamed.



FIG. 1.

The bandage may be applied at any stage of the attack, but it is especially applicable in the beginning, often cutting short the swelling.

If the testicle should swell after this dressing is put on—which, thus far, has not happened in my cases—there is ample room towards the penis and perineum to allow of swelling without undue pressure, thus relieving any fear of strangulation.

The testicle is thus put in a splint, so to speak, and at the same time the plaster retains the heat and moisture.

Patients who come with an epididymis much swollen, saying that they can scarcely walk for the pain, after the application of the bandage, ex-

press themselves as much more comfortable. They go about in comfort, attending to their ordinary duties, provided the occupation is not one calling for unusual exercise. The swelling subsides rather rapidly so that within a week or ten days, the plaster may be removed and a suspensory bandage worn instead.

A case of acute epididymitis whom rest in bed, support of the testicles, and application of poultices failed to relieve pain, the patient requiring large doses of opium to keep him in any comfort, was made comfortable at once by the plaster bandage. A few weeks ago a patient on whom this



FIG. 2.

bandage had been applied and to whom it had given ease, fell into the hands of another physician three days later. The straps were removed and the patient told to use flaxseed poultices. His epididymis now began to swell again and pain returned when he at once came back for a reapplication of the adhesive straps, which again gave him relief. I have now employed this method in a number of cases.

If left undisturbed for too long the plaster will cause considerable irritation of the skin, but, as a rule, I find that it may remain a week or ten days without causing any inconvenience from that source. Fortunately

that is usually sufficient time to reduce the swelling so that the epididymis is no longer painful when an ordinary suspensory is worn.

In a few cases the patients objected to having the pubis shaved and I then applied the plaster over the hairs. This naturally causes considerable difficulty when the time comes for its removal. It may be done without much discomfort to the patient, however, if he will sit in a tub of hot water for a time and soak off the cloth of the plaster. The rubber part of it may then be removed with alcohol or gasoline. If gasoline is used care must be exercised to immediately remove the gasoline, as it is a strong irritant in this case.

The great advantage of this method of dressing the testicle is the speedy relief of pain and the patient's ability to be up and about to attend to his business, the latter being quite a feature with some people.

The bandage may be adopted for any inflammatory condition of the testicle as an aid to other treatment, but is especially applicable to acute gonorrhœal epididymitis.

ABSCESS OF THE LIVER.—SUCCESSFUL CASES IN POINT.

BY WILLARD BARTLETT, A. M., M. D., St. Louis, Mo.

Case No. 1.—Mr. B., age 31, white, born in New York, a barber by trade, came to St. Anthony's Hospital on the first day of January, 1906. He had the appearance of being a haggard, weak, sick man. He could not sit up quite straight, nor walk without agony, and it was evident, on first sight, that the man was suffering from a painful abdominal disease.

In view of later developments he gave a history which was interesting to say the least. He said he was never sick at all, until nine weeks ago, and, until that time, had worked constantly at his trade. Nine weeks ago he commenced to have a steady burning pain in the region of the stomach, which has never left him. This has not been alleviated by any kind of medicine, or applications, and since its commencement he has lost twenty-seven pounds in weight. He has had some fever, but no chills. "*Has never suffered from diorrhœa, or been out of this climate.*" His appetite has gradually failed, and for the last three weeks he has had none at all. Still food does not distress him, nor has he vomited a single time. He is exceedingly constipated, and says that he must have some sort of relief, as the distress in the upper portion of his abdomen is gradually driving him to distraction.

Physical.—In the epigastric region, lying slightly to the left of the middle, there is projected onto the anterior wall, an elevation, which corresponds, approximately in size and shape to the outline of the normal stomach. This is so characteristic in appearance, that the first impression on seeing the patient is likely to be one of a new growth filtrating the anterior

wall of the stomach. This mass is exquisitely sensitive, so much so, that the patient can not bear any adequate physical examination. As stated before he cannot stand erect, nor lie on his back, but remains curled up in bed with the knees drawn well up, in order to take tension off of his anterior abdominal wall. His temperature and pulse are slightly elevated.

Operation. Jan. 2, 1906. A median laparotomy was made, and the mass, above referred to, was at once seen to be an immensely enlarged left lobe of the liver. In fact, this is so increased in size that it practically fills out the lower abdomen. In front nothing but ordinary looking liver tissue is seen, but the posterior surface of the left lobe reveals an intensely interesting condition. Here no liver tissue is seen, simply the thickened capsule of Glisson is spread out over a fluctuating sac, which apparently constitutes a large portion of the diseased member. There are fibrinous adhesions between the stomach and this altered posterior surface of the liver, while in the peritoneal cavity, a small amount of thin serous fluid is encountered. It is very clear that a large collection of fluid has to be liberated, and the problem which confronts me is, "How this should be best done by the most direct route, without allowing any of it to escape into the general cavity." Obviously, it would be bad surgery to cut through the thin posterior wall, even though the collection lay more superficially here. What I did was to place two heavy stay-sutures of catgut about an inch apart in the liver tissue in front. By exerting traction on this, I could bring the organ tightly against the anterior wall and puncture between them with a trocar. This revealed thick, yellow pus, which was thus drained off, as long as it flowed spontaneously. Then with the actual cautery, I opened the cavity widely, and allowed what seemed to be about half a gallon of the fluid to escape. Two heavy rubber tubes were inserted and gauze superficially packed around them, to stop hemorrhage of the liver tissue. Gauze strips were carefully packed for a little distance between the abdominal wall and the anterior surface of the organ, in order to cause dense adhesions. The stay-sutures, above referred to, were tied to the edges of the abdominal incision, and three or four clamps left hanging to the liver tissue, in order to make doubly sure that the organ would not sag away from the anterior wall, and pour its contents out into the peritoneal cavity.

The next day the patient was normal in every particular and comfortable. On the fourth day the clamps were taken off the liver tissue. On the sixth day, the gauze packing was removed. On the eleventh day, the tubes were taken out, and the patient sat up. By the nineteenth day, the discharge had grown exceedingly slight, and he was gaining rapidly in strength and weight. On this day he went down town and back on the street car. On the twenty-fourth day, the patient went home perfectly well, except for the fact that there was a very slight serous discharge

which stopped in a few days more, and he is now working hard at his trade, strong and healthy, as he ever was in his life.

Case No. 2.—Mr. B., 20 years of age, a German and a sailor by occupation, entered St. Anthony's Hospital, March 23, 1906. He had been a sailor in the United States Navy, stationed in the Philippine Islands for some years. In August, 1905, he suffered from dysentery and was very sick. The September following he commenced to have pain high up in the right side of the abdomen. This continually grew worse and was attended by chills, fever and sweating. Later on the region of the liver commenced to swell, and the patient began to lose in weight. He is now about twenty pounds lighter than he was when the malady commenced. The white blood cells are increased, and the hæmoglobin is greatly diminished. He has been in bed almost three months and has the appearance of a very weak, sick young man.

Physical. There is a distinct bulging of the right upper abdomen and lower chest. A dull area, with a dome-like apex, reaches upward to the fourth rib. This whole region is sensitive to pressure, and nothing is revealed by explorative puncture.

Operation. March 24, 1906. The eight and ninth ribs were resected in the mid-axillary line, and within the chest fibrinous adhesions found between the diaphragm and lung. These were sufficient to prevent the lung collapsing to any great extent. The plura of the diaphragm was sutured to that of the chest wall, while around the opening a guaze pack, soaked in 50 per cent. chloride of zinc, was tied in place, in order to cause dense adhesions. One week later, on March 31, an opening was made through the diaphragm, and its under surface found firmly adherent to the liver. By inserting a long trocar in several different directions, I finally located a large abscess in the upper posterior portion of the right lobe. Following the course of the trocar, I tore a large opening with the forceps and immediately liberated, what seemed to be, about half a gallon bile-stained pus. Three drainage tubes were introduced and gauze packed around them. As soon as the patient awoke from the anesthetic, he expressed himself as being greatly relieved. His temperature, which reached 104 the night before the operation, has not been up to 100 since. A week later the gauze was removed. Nine days after the operation, his appetite was splendid, he was gaining rapidly in weight, but there was still a considerable amount of pus. At the end of two weeks, he was sitting up, and the discharge rapidly growing less. Within the next week he was walking around the hospital and down in the yard, looking like a different man from the emaciated invalid, who entered the hospital less than four weeks before.

The two cases just narrated, illustrate many features of this disease, which are directly in contrast to one another. The first patient presented

none of the points which one might expect in the history and the physical examination of a man so afflicted. He had never been out of our climate, never had diarrhœa, and insofar differed, decidedly, from patient No. 2, who had served with the United States force in the Philippine Islands, and suffered from tropical dysentery. Under the latter circumstances, the diagnosis was naturally easy.

With these two contrasting histories, the findings in both cases were decidedly similar. In each instances there was a large *solitary* abscess, the only difference in the two being that the lesion was situated in the left lobe in one case, while it was in the right lobe in the other.

I shall briefly quote a third case merely to show what can be accomplished in the surgery of this disease.

In the summer of 1904, a boy, ten years of age, entered St. Anthony's Hospital, with a history of several months' sickness, which had been treated as typhoid fever. He was pale, emaciated, had no appetite, and could scarcely speak above a whisper on account of weakness. The entire upper abdomen was symmetrically distended, so much so, that the excursions of the diaphragm were considerably embarrassed. He was so sensitive and so nervous, that an adequate examination could not be made, but it was very easy to determine that a newly formed mass, of some sort, occupied almost the entire upper abdomen. The abdomen was opened high up in the middle line, and, an immensely enlarged left lobe of the liver presented itself. This was treated just as in the first instance, exploratory puncture showing the presence of bile-stained pus. Drainage resulted in the boy's rapid improvement, and in a few weeks he was at home, perfectly well, and is now as fine a specimen of American boyhood as can be seen anywhere.

These three histories are recited chiefly to show what can be accomplished by surgery in this disease. I have had only these three cases, hence, the mortality for this very small number, must be placed at 100 per cent. Of course, I realize that in a larger number of cases 100 per cent. recovery is not to be expected, still, it is encouraging to say the least, that these three, who were extremely sick people when they entered the hospital, recovered so promptly when the gravity of the lesion is taken into account.

EDITORIAL.

ON CERTAIN TENDENCIES.

One of the developments of modern civilization is a well-defined trend toward the organization of human activity into bodies that are representative of certain industries. These bodies strive for the common welfare of their component parts as a whole, not as individuals. All departments of labor are organized, likewise are the operators protected as individuals by their associations as a whole, for the common good. We have no desire to become engrossed at this time in the fascinating study of the objects and means to the end of these organizations, we only wish to mention certain questions that immediately strike our fancy in considering some of the tendencies now evident as objects of an organized medical profession. Shall we soon carry with our prescription blank a "registered union card?" Shall we be called upon to "strike" work for sympathy of some allied interest,—let us say The Pharmaceutical Association? Shall a "walking delegate" dictate to us as individuals for the welfare of the whole? These are absurd questions no doubt. We feel that to recite them indicates flippancy; however, much as we are inclined to laugh, the serious aspect of these suggestions straightway banishes our rising humor.

The organization of the medical profession for the purpose of demanding the making and enforcing of just laws so far as these laws are necessary to public health is right. We most heartily agree in this also—that the medical profession should also be organized as a whole in order to accomplish reforms of a broad humanitarian nature. Again it should be brought together for the sake of its component parts, that the individual may be encouraged, educated, and justified. These are the purposes of medical organization to our mind, and surely there are cogent reasons for such organization. Let us now consider what evil may befall an organization planned for noble designs. The medical community may be called upon to stand together because of some "gross and unnecessary" injustice to its commercial side. The regulation of fees paid by certain commercial institutions for contract medical work may demand concerted action. Now we observe the striking similarity that may be assumed by certain of our organizers to trade labor union methods. Could the medical profession be placed more securely "on the level of miners and bricklayers" than by unanimous action on a commercial question, i. e., the five dollar or three dollar fee (wage scale)? Let us not produce the impression that to our mind there is necessarily an individual superiority of the medical unit over any other unit. But we believe sincerely that the practice of medicine should not be a commerce. We believe that the use

of our medical community for commercial ends will do more to place the profession as a whole on the level of "miners and bricklayers" than the action of any individual corporation toward its medical employees.

DEPARTMENT OF MEDICAL LAW AND JURISPRUDENCE.

We desire to announce the addition to the JOURNAL, beginning with the June issue, of a department devoted to medical law and jurisprudence. Medicine and law, in their practical operations at least, are the most closely allied of the great professions—in many instances inextricably blended. The principles and practice of the different branches of medicine are every day invoked to the elucidation of doubtful questions in courts of law. The physician is called upon as the expert to testify in the judicial tribunal in cases affecting life, reputation and property. He is required to apply the principles of his profession in aid of judicial procedure and bring to the court such assistance as the case may demand for the discovery of truth.

On the other hand there are fundamental principles of law which govern the physician in his relations with other members of society. He holds himself out to the world as skilled in the practice of a profession which involves essentially a relation of confidence and trust and which in consequence falls peculiarly within the regulating power of the law. The law zealously guards both life and limb—and the State is primarily concerned in matters of health.

The importance to the physician of an understanding of the first principles, at least, of medical law and jurisprudence becomes at once apparent. There will be no attempt to offer here anything more than a discussion and development of fundamental principles from time to time as they may be suggested by newly adjudicated cases. Nothing in the nature of exhaustive definitions of the many and varied legal rights and duties of the physician will be ventured—yet certain practical considerations may be presented likely to prove of value to the physician in his professional relations.

COMMENT.

THE MUMMY IN MEDICINE.

A glimpse into the past is often a fruitful source of instruction and not barren of results in broadening our ideas of what others have done and what we ourselves may be capable of doing.

Looking into the dim light breaking through the darkness surrounding the practice of medicine in its earliest known form we see a few of earnest, thoughtful, and unselfish men who devoted their lives to the alleviation of the sufferings of their fellow-beings, drawing their remedies from whatever source their limited knowledge of the human body and their meagre means for investigation permitted them to reasonably conclude that what they prescribed would contribute to the restoration of health. It is beyond belief that of the many curious things used by the ancients in the treatment of disease there could have been any remote curative effect from mummy, swallow's nests, ants' eggs, etc., in fact quite the contrary undoubtedly often resulted. We must, therefore, attribute many recoveries from illnesses to the self-limiting action of the disease and probably to a suggestive influence unconsciously exercised by the physician in many cases. A short description of preparation of mummy and some of its uses in medicine may prove interesting to our readers. For much of this information we are indebted to a paper written by H. W. Mendedolt, an Egyptologist, and published in *The Physician and Surgeon*, (London.)

Mummy was an important factor in the medicine of mediæval times. The use of mummy possibly had its origin in the days of hoary antiquity. It was not an uncommon practice for certain persons to eat portions of the bodies of deceased relatives, in the belief that they thus gained for themselves the powers or qualities the persons had possessed. The discoveries of Professor Petrie in Egypt seem to point to some such practice being in use among the aborigines in Egypt. He found in the rock-hewn tombs a large number of skeletons from which the flesh had been removed prior to burial which Mr. Petrie claimed as proof that the early Egyptians ate parts of their dead in order to keep their virtues among themselves. These skeletons date back to a very remote period, possibly 2,000 years before the time of Abraham, and long before that of the famous pyramid builders, Khufu (Cheops) and Mykerinos.

The first use of mummy in medicine is said to have been practiced by a Jewish physician who proclaimed that flesh thus embalmed was good for divers diseases and particularly bruises, preventing the blood coagulating. Bacon also seems to have held such opinion when he wrote "Mummy hath great force in staunching blood, which may be ascribed to the mixture of balms that are glutinous."

In the middle ages preparations made of mummy were largely in use; the following are the names of a few of these: Mumia artificialis; tincture of mummy; elixir of mummy; extract of mummy, arcanum of mummy.

Elixir of mummy was prepared by macerating in turpentine for forty days, after which it was to be put into a bladder and digested in an alembic and sublimed. This elixir was supposed to cure the plague. Balsam of mummy was prepared by digesting for twenty-one days in olive oil. The oil was sweet scented and red in color. These preparations were used in cases of consumption, hectic, ulcers, and corruptions, while arcanum was supposed to be efficacious in wounds, pestilence and poisons.

Mummy could be readily purchased at apothecaries; this is evident from the passage in *Shirley's Bird in a Cage*, "Make mummy of my flesh and sell me to the apothecaries." The London Pharmacopœia, in a long list of curious remedies mentions swallows' nests, ants' eggs, gelatine of fishes, exuviae of the frog, and "tarred mummy" as recognized medicaments.

The use of mummy in medicine appears to have died hard for there are traces of it having been used to the end of the eighteenth century. As the use of mummy grew, the demand for it caused a regular trade to grow up for this article. The supply often did not meet the demand and this resulted in the use of fraudulent mummies which were ground up and sold for the genuine article. These forgeries were made from the bodies of persons hanged or who had died of some loathsome disease, by placing them in hot sand. It is said that all mummy sold in the shops, whether brought from Venice or Lyons, or even direct from the Levant by Alexandria, were fictitious, the genuine mummy being counterfeited by drying carcasses in ovens after having prepared them with powdered myrrh, caballine, aloes, and other coarse and unwholesome drugs.

The trade in mummy was somewhat interfered with in a curious manner. A man of Damietta, who traded in mummy, had a servant whom he treated very badly. Unable to bear this treatment any longer, the servant betook himself to the authorities and, out of revenge, told what his master's business was, which at that time, had been pronounced illegal. The authorities, acting on the information received, came down upon the man and confiscated his whole stock of more or less fraudulent mummies. The result of their investigation led to the finding of other mummy stores which were also closed. Mummy, nevertheless, for many years remained on the market here and there, and it was not until the close of the eighteenth century that it finally disappeared from the Pharmacopœias of the world.

MEDICAL AND SURGICAL PROGRESS.

INTERNAL MEDICINE.

IN CHARGE OF

JESSE S. MYER, M. D.

CONCERNING THE CO-RELATION OF HEART AND GASTRO-INTESTINAL DISEASES.—Schmidt (*Berliner Klinische Wochenschrift*, No. 14, 1906.) discusses the relationship between gastro-intestinal and heart diseases, and shows how affections of the one may often be taken for those of the other. It is quite natural that gastro-intestinal disturbances should arise in diseases of the heart because of the stagnation in the portal system. Much of the gas produced in the intestines and introduced into the intestines with food, is absorbed and taken up into the circulation. In the event of a venous hyperemia, therefore, the absorption of gases does not go on properly and marked distention with all of its unpleasant features occur. Frequently, therefore, gastro-intestinal symptoms and cardiac disturbances are more prominent than are the primary cardiac symptoms. On the other hand, cardiac symptoms are often produced through the disturbances of the gastro-intestinal tract. These symptoms may be divided into three classes: (1) Tachycardia and allorhythmia. (2) Angina pectoris. (3) So-called asthma dyspepticum. The first class of cases occur after mistakes in diet in persons who have chronic-dyspeptic troubles and manifest themselves with rapid, arrhythmic pulse and palpitation of the heart. The second class of cases occur periodically, usually after the ingestion of food but often upon an empty stomach, and are characterized by a feeling of pressure, anxiety, paleness, small frequent irregular pulse, palpitation of the heart, dyspnoea and other peculiar sensations. The digestive symptoms may remain entirely in the background.

The third group is characterized by dyspnoea of a subjective type. It resembles more the attacks of cardiac asthma than those of bronchial asthma. The affection is purely of reflex origin. The author closes this valuable article with a few words on the diagnosis, prognosis and therapy of these affections.

THE GENERAL CONSIDERATION OF THE THERAPEUTIC USES OF DIET.—Hutchinson (*The Practitioner*, April, 1906,) calls attention to the loose way in which dietetic means are employed as compared with the relative exactitude and consistency with which drugs are prescribed, and says that this is due in no small measure to the lack of proper system in instruction in dietetics in our schools. In this article he endeavors to sketch very briefly the general uses and limitations of dietetics in the cure of disease, and in the conclusion of the article he lays down some general rules which may well be borne in mind. (1) When prescribing a diet for a case of local disease, one must take care not to sacrifice the whole

to the part. (2) No article of food should be forbidden unless one has good reason for doing so. (3) In acute diseases one should recommend, in chronic forbid. (4) Before recommending any article, find out whether the patient likes it and whether it agrees with him. (5) If an article disagrees it is better to reduce its amount in the diet than to cut it off altogether. (6) General changes in diet should be proposed and made gradually. The author calls attention to the comparative immunity of the carnivora to tuberculosis and to the success which has attended a raw meat diet, and while he does not maintain that the subject is definitely settled, he suggests that it is well worthy of consideration. If we would escape the charges of inconsistency and arbitrariness apt to be brought upon us with some justice when we come to the dietetic part of our plans of treatment, we should never make a change in a patient's customary diet unless we have definite grounds for so doing.

DIET IN RENAL DISEASE.—Bradford reviews tersely the dietetic indications in renal disease. In acute and chronic renal disease where such complications as dropsy and uremic symptoms are present, the dietetic treatment must be based on restricting the work of the kidney to as great an extent as possible. In cases of true acute nephritis with suppression of urine the diet should be reduced to the greatest extent possible, and in some cases should be withheld entirely. In chronic renal disease with dropsy and uremia, the dietetic treatment must be somewhat similar to that applicable to cases of acute nephritis, but the restrictions cannot be carried out to the same length as those suitable to the treatment of an acute malady. Where uremic symptoms and anasarca are present, nitrogenous foods must be diminished as much as possible. He believes that the improvement under a milk diet in chronic renal disease is often more spurious than real. While the quantity of urine is increased and the albuminuria diminished, in reality there has been simply a diuretic action of the milk which has increased the flow of urine and consequently a relative diminution of albumin. In granular kidney, restriction both in amount and character is necessary. The absence of clinical symptoms in these cases leads the patients to be rather imprudent in their habits, and they must for this reason be especially carefully watched. Comparatively little meat should be eaten by nephritic patients, but it matters little as to whether this is dark meat or white meat. The chief point to bear in mind in the selection of proteid food should be rather its digestibility than any theoretical considerations as to the relative superiority. Stimulants are harmful in all forms of renal disease and are best avoided.

THE RESULTS OF OPERATION FOR PERFORATION OF ULCER OF THE STOMACH.—Goldschuecker (*Centralblatt f. Grenzgebiete Med. u. Chir.* Nos. 3, 4 and 5, 1906,) reviews in detail the results of surgery in perforation in ulcer of the stomach, presenting about 300 literature references leading up to the present date. Inasmuch as this subject is one of special importance to the internist, we deem it well to call attention to it here. It would be utterly impossible to call attention to all the points brought forth in this exhaustive article, but allusion may be made to a few of the conclusions reached, especially in reference to diagnosis. Perforation of

ulcer of the stomach occurs more often among women than men, and the women thus affected are younger than the men. The previous history is exceedingly important in arriving at a diagnosis because in most cases the history of a long-standing affection of the stomach may be elicited. For sudden perforation there is no absolutely certain sign, however, sudden, severe pain localized in the gastric region should always direct one's attention to the possibility of the existence of this condition. Localized peritoneal friction sounds in the gastric region are always important. Early vomiting occurs in the majority of cases; the abdominal walls are exceedingly hard; the disappearance of the liver dullness has only slight value, as a thorough diagnostic sign of gastric perforation it is greatly overestimated. If possible, cases should be operated upon within the first twelve hours, since the chances for recovery after this are greatly diminished. The results of operation within the last few years have been materially better. Of course where possible the patient should be operated upon in the hospital rather than at home. About 50 per cent of the cases are cured through operation.

PATHOLOGY AND BACTERIOLOGY.

IN CHARGE OF
CARL FISCH, M. D.

Experimental studies about the action of Preparations made from Tubercle Bacilli on the Tuberculous Organism.—A. Wassermann and C. Bruck (*Deutsch Med. Woch.*, 1906, No. 12).—The very important investigations of Wassermann and Bruck unfortunately must be dealt with here in an unsatisfactory manner, as for a full understanding a great amount of explanation on very complex serum reactions would be necessary which would exceed the space of a review. It must be sufficient to say that they introduced into the study of the specific reactions of tuberculous individuals a method first suggested by Bordet and Gengou and later worked out by Moreschi and Neisser and Sachs, which permits, as Wassermann has shown, by binding of complement, the demonstration of the presence of even minimal quantities of bacterial substances and of their antigenes. The method promised to give valuable aid in the solution of many problems on the subject of infectious diseases. The authors have succeeded in arriving at an explanation for the heretofore mysterious reaction caused by tuberculin in infected individuals; not only this, but also an explanation for the nature of the therapeutic effect of preparations made from tubercle bacilli. By their method they were able to demonstrate the presence of anti-tuberculin in the tuberculous focus, which only with the dissemination of it appears in the blood. The localization in the limited primary lesion acts as it were chemotactically on the most minimal quantities of the substance through which it is produced when introduced into the organism. This process leads to active autolytic phenomena in the tuberculous focus to caseation and resorption. This specific reactive capacity becomes less with the extending of the lesions. The antituberculin then is found in the body fluids and neutralizes within them any tuberculous substance introduced from without. The focal

reaction is thus eliminated and the infection progresses. It is impossible to enter into the detailed steps and investigations that led to these conclusions. What their practical consequences will be, the future will show. That the facts given are correct and correspond to many well observed clinical experiences is clear. Practically the work has so far proved its firm foundation by the discovery that by its method the often fraudulently applied tuberculin injection shortly before the official examination of cattle can be demonstrated in the presence of antituberculin in their blood. Cattle show this substance in their blood with much earlier tuberculosis lesions than those with which, in the blood in human patients, it is to be found.

WITHOUT MOSQUITOES THERE IS NO YELLOW FEVER.—Carroll (*Am. Med.*, Mch. 17, 1906).—It is an anachronism that this article, written by a man who stands in the front line of the men who have shown us how easy it is to eliminate yellow fever from our continent, could be necessary or deemed advisable. It is classic in its style and superiority and may be considered as the final death sentence to that form of yellow-fever literature that was so rife during the time of the late New Orleans epidemic. That the article had to be written throws a gloomy light on the small degree of receptivity shown by our country. We may be thankful to Carroll that his objective representation must withdraw even the courage to make an attempt at contradiction. There is no doubt that as yet many problems in the yellow-fever question are not solved, but they will be solved with absolute certainty only on the basis of facts which Carroll's whole article set forth so clearly and impartially. The little paper ought to be widely read and considered.

THE HEREDITARY TRANSMISSION OF THE YELLOW FEVER VIRUS IN *STEGOMYIA FASCIATA*.—Marchoux and Simond (*Compt. rend. Soc. biol.*, Aug. 4, 1905. *Ann. de l'Inst. Pasteur*, vol. 20, No. 2, 1906.)

Report of Working Party No. 3.—Rosenau and Goldberger (*Yellow Fever Institute Bull.*, No. 15).

That the basis of the facts represented by Carroll, as explained in the above review, is the one that bids fair to solve yellow fever questions so far unanswered is lately confirmed by the work of Marchoux and Simond. Before them our American Commission, impelled by similar observations on spirochaeta, piroplasma and some other protozoic infections, attempted to solve for the yellow fever organism the question whether in it, too, the transmission of the virus from the mother mosquito to her eggs could be established, thus accounting for the sometimes abrupt and disconnected appearance of the disease in certain localities where no fresh cases had existed or were imported. The explanation so far had been either the persistence of the virus in the blood of a last year's patient (an assumption very unlikely to be true in view of what we know of the parasite and its presence in the infected organism), or the hibernation of infected mosquitoes, which under favorable conditions is possible, an analogon of which seems to exist in the mosquitoes carrying the plasmodium vivax (after Schandinn). The experiments made

were without success. The animals arising from the eggs of infected mosquitoes did not give rise to the disease by their bites.

Marchoux and Simond took up the question again and had a positive result in one case in Brazil. A female mosquito raised in the laboratory was allowed to feed on two yellow fever patients at an interval of two weeks. One batch of eggs was laid before the second feeding and another one three days after the second. The latter batch was raised and represented the perfect imago-stage in fourteen days. After two more weeks two females were allowed to bite a Portugese who had only a few days before arrived from Europe and had never been in contact with yellow fever. He showed no reaction for eight days. On the eighth day after the first bite one of the two mosquitoes was made to bite him again. Four days later the man showed the typical picture of an attack of yellow fever. It is not necessary to mention that the experiment was carried out with the identical methods used by Reed, Carroll and Lazear. During the New Orleans epidemic Rosenau and Goldberger repeated the experiments of the French Commission. By the same method 13 non-immunes were exposed to the bites of mosquitoes raised from eggs of infected mosquitoes. In none of these attempts was success achieved. Why this is so is hard to explain. If we look for conditions in analogous cases we find that for instance Koch in the examination of the eggs laid by ticks carrying the spirochaete of tick-fever, saw that by no means all of them contained the microbe, but that always only a certain percentage were infected. In some cases none of the eggs showed the parasite. Similar conditions may obtain for the yellow fever. The positive result obtained by the French Commission is not made doubtful by the negative findings of Rosenau. It will be the stimulus for further, more extensive investigations which most likely will establish the extent to which from this source a dissemination of the disease is likely to occur.

TROPICAL SPLENOMEGALY.—Musgrave, Wherry, Woolley (*Johns Hopkins Hosp. Bull.*, 1906, No. 178).—The paper describes the clinical history, blood findings, study of material obtained from the spleen and autopsy records of a number of cases of tropical splenomegaly occurring under their observation in the Philippines. In all respects these cases corresponded entirely to the picture of the widely distributed tropical disease known as dundum fever, kala azar, and by other names. It is interesting to note that with this form of splenomegaly typical other forms of enlargement of the spleen are found in the same locality, as for instance, cases of Bantis' disease. As is well known, kalā azar, since Leishman's discovery, has become the prototype of a protozoic infection, due to formations found in the infected person called Leishman's bodies, and later recognized as a stage in the life cycle of a protozoon nearly related to the trypanosomes. The uniformity of the clinical picture of the splenomegalia characteristic of the tropical areas naturally led to the belief that their etiology was the same everywhere. The disease as observed by the authors in the Philippines, clinically identical with kala azar, must be different etiologically; the authors in spite of the most

careful investigation, never succeeded in demonstrating in any one of their cases, Leishmann's bodies nor anything resembling them. With the comparative ease with which these bodies are found and characterized in cases where they are present, the assertions of the authors appear definite and positive, that clinical resemblance in some conditions does not mean the same causative factor.

DIAGNOSIS.

IN CHARGE OF
ALBERT E. TAUSSIG, M. D.

TYPHOID FEVER IN V. JAKSCH'S CLINIC.—Skutczky (*Zeitschr. f. Heilk.*, 1906, No. 2).—During the years 1889 to 1903 there were treated at v. Jaksch's clinic, in Prag, some 793 cases of typhoid fever, with a mortality of 12.5 per cent. The best results as regards early diagnosis were obtained by means of splenic punctures. The enlarged spleen was punctured, with scrupulous asepsis, a few drops of splenic blood withdrawn and sown upon nutrient media. By this means typhoid bacilli can be grown from the patient's blood very early in the disease. The procedure, if certain contraindications be observed, is practically free from danger. As regards the Widal test, v. Jaksch prefers Ficker's modification to the use of living cultures. Since 1901 all typhoid patients were subjected to an exclusive hydro-therapeutic regimen. As soon as the axillary temperature reached 39 degrees C. (102 degrees F.) a lukewarm bath of a temperature of 30 degrees C. (86 degrees F.) and lasting 10-15 minutes, is given. This may be repeated 2-4 times daily. Liquid diet until the seventh fever-free day; no alcohol. The urine is kept sterile until far into the stage of convalescence by means of the administration of urotropin.

PERCUSSION IN PLEURITIC EFFUSIONS.—G. Kroenig, (*Berl. klin. Wochenschr.*, 1906, No. 13).—In nearly 1000 cases of pleurisy with effusion, the writer has found that the upper margin of the fluid, posteriorly, as outlined by percussion, is not a horizontal line, but a curved one with its convexity upwards. The highest point of the area of dullness, posteriorly, lies in a line with the inner margin of the scapula, or even still farther out towards the axillary line. As it approaches the spinal column the upper margin of the area of dullness curves downwards, thus including between itself and the spinal column an area in which the percussion note is tympanitic, the respiratory murmur is bronchial and the vocal fremitus increased. This is directly opposed to the statements of nearly all of the text-books who agree that the highest point of the dullness lies along the vertebral column. The writer believes that the above described peculiarity of pleuritic effusions may help to distinguish them from pneumonic consolidations.

In a discussion of the above article, O. Rosenbach (*Berl. klin. Wochenschr.*, No. 15) points out that as long ago as 1878 an American, Garland, called attention to this same phenomenon, whence the tympanitic

area between the exudative dullness and the spinal column has received the name of Garland's Triangle. Kroenig's findings are thus not new, though it was perhaps worth while for him to call attention to a phenomenon so generally over-looked.

THE QUANTITATIVE DETERMINATION OF HYDROCHLORIC ACID IN GASTRIC JUICE ACCORDING TO PETTERUTI'S METHOD.—S. Barba (*Rif. Med. XXI*, No. 49; Ref. in *Jl. A. M. A.*, 1906, No. 15) has been experimenting with the test devised by Petteruti of Naples. It is based on the fact that Congo-red paper is not affected by hydrochloric acid in combination with albumin, while it turns blue under the influence of even a trace of free hydrochloric acid. The yolks of two eggs are stirred into 300 c.c. of bouillon and the whole filtered. About 250 c.c. are then ingested by the person to be tested, and the rest of the bouillon is set aside. An hour later some of the ingested bouillon is withdrawn with the stomach tube. A 2 per thousand solution of hydrochloric acid is then added, a drop at a time, to 5 c.c. of the bouillon that had been set aside, testing each time to see how many drops are necessary to saturate the bouillon until the Congo-red reaction occurs. The procedure is then repeated with 5 c.c. of the stomach content. The difference between the results, multiplied by 50, represents the number of cubic centimeters of the solution of hydrochloric acid containing an amount of hydrochloric acid equivalent to that secreted in the stomach in the course of one hour. Experiments on healthy persons with this test showed that this amount was from 0.2 to 0.5 gm. Multiplying by 4 to bring the 250 c.c. to 1,000 c.c., the physiologic limits were 0.8 and 2 gm. The test was applied on 11 patients with stomach troubles and the results confirmed the clinical findings. The simplicity and rapidity of the test commend it, although it shares with similar tests the drawback that the secretion of gastric juice varies with different stimuli and with different people.

THERAPEUTICS.

IN CHARGE OF

WALTER BAUMGARTEN, M. D.

DUPUYTREN'S CONTRACTION TREATED WITH INJECTIONS OF THIOSINAMIN.—Teschemacher (*Therap. Monatsch.*, Jan., 1906,) reports the results of treatment with subcutaneous injections of thiosinamin of Dupuytren's contraction in four cases of diabetes. In two cases the result was perfect, in one no improvement occurred, and in a fourth the patient declined to submit to a sufficient number of injections. The solution used consisted of:

Thiosinamin	2.0
Glycerin	4.0
Aq. dest.	14.0

of which a syringe-ful was injected daily. In addition to this the scar-tissue was massaged systematically, treated by hot baths, and anointed daily with vaseline.

In the first case the injections were made in the forearm, on the involved side. Twenty-five injections were made before any softening of the bands of contraction could be observed. At the end of fifty injections, however, all signs of scar-tissue had disappeared and the extension of the fingers was perfect, and remained so. No abscess occurred in the course of this series of injections, nor was much pain produced.

The second case proved to be very sensitive to the drug, the injection of which was always followed for an hour by severe pain, and on one occasion by an abscess. Subsequently the injections were made into the gluteal region with less disagreeable results. After an interruption in the treatment, "fibrolysin" (Merck), a modification of thiosinamin, was substituted for the thiosinamin previously used. This, injected into the gluteæ, caused neither abscess formation nor pain. Slight improvement was noted after fifteen injections of thiosinamin, but very marked change, both in mobility of the finger and in softening of the scar, occurred after twelve injections of fibrolysin. A complete cure was established after nineteen injections.

THE ACTION OF THIOSINAMIN IN TRAUMATIC STRICTURES.—Mohr (*Therap. Monatsh.*, Janu., 1906,) reports a case of stricture of the left parotid duct following a lacerated wound of the left cheek, which extended from the outer canthus of the eye to the angle of the jaw. This was relieved by operation, but repeatedly closed up in spite of systematic dilatation with sounds. Subcutaneous injections of thiosinamin were then begun in connection with the dilatations. A ten per cent aqueous solution with twenty per cent. of glycerin was employed, of which one cc. at a dose was injected in distant parts of the body. Eleven injections were made in the course of four weeks. Five injections of $\frac{1}{4}$ cc., of the solution were also made in the immediate neighborhood of the stricture. In the third week the stricture became less firm, and at the end of the fourth week it had yielded to such an extent that no retention of fluid occurred, although dilatation had been discontinued. No recurrence had taken place two and one-half months later.

Mohr considers thiosinamin as a valuable adjunct to mechanical or operative measures for the relief of stricture in that it in time materially softens the scar-tissue, often makes effective otherwise unsuccessful treatment, undoubtedly hastens recovery and tends to prevent recurrences.

THE TREATMENT OF TUBERCULOUS PLEURISY WITH EFFUSION.—Potter (*Lancet-Clinic*, March 24, 1906,) seeks to emphasize the fact that while tuberculous pleurisies with effusion, in which the tuberculous infection is confined to the pleura, are most promptly and efficiently cured by aspiration. Pleurisies with effusion which are incident to an evident involvement of the lung cannot be so treated as a matter of routine. Effusions complicating lung infections tend to put the lung at rest and are frequently accompanied by improvement rather than retrogression in the patient's condition. The sudden withdrawal of fluid in such cases results in an increased blood supply to the previously compressed lung and a renewed distension and functional activity which is frequently followed by increased irritation, extension of the disease, cough, and hemorrhage, with a progressive loss of ground by the patient.

TREATMENT OF MENINGOCOCCUS MENINGITIS.—Dow (*Med. Record*, March 31, 1906,) recapitulates the method of treatment of meningococcus meningitis in the first medical division of Bellevue Hospital, New York. "The meningococcus excites for about two weeks an intense structural and functional over-activity, with sometimes a resulting increased cerebro-spinal pressure, and with sometimes various degenerations." The intense cellular activity may be advantageously met with very small quantities of morphine given hypodermically. For the same purpose, a fairly warm and constant room temperature assures a vigorous cutaneous circulation which tends to reduce the quantity of blood that reaches the brain. The same result may be more effectively reached when the necessity is urgent, by warm baths, which tend to relax the muscular apparatus and to dilate the cutaneous vessels. Moderate elevation of head and shoulders has been found to rapidly dissipate the active symptoms, presumably by the relief of cerebral congestion. The best angle of elevation must be determined by experiment, after which it should be increased as convalescence begins. Lumbar puncture is useful in the first few days, or at the beginning of a relapse and acts by relieving cerebro-spinal pressure so that absorption from the serous membranes can again take place, similarly as in pleurisy with effusion.

Measures directed toward maintenance of the general strength should consist in a generous, though simple diet, forced feeding, if necessary, an abundance of fluid, the careful avoidance of constipation. Thorough ventilation has a marked effect on the improvement, and in warm weather it has been the custom to keep meningitis patients constantly out of doors.

The writer protests vigorously against the use of stimulants as they simply increase the pathological circulatory condition in the brain. When the heart's action becomes weak and the extremities cold, digitalis in small doses should be given, but the administration of strychnin, adrenalin chloride, nitroglycerin, atropin and large doses of digitalis or alcohol do nothing but harm.

SURGERY.

IN CHARGE OF .

WILLARD BARTLETT, M. D.

THE SURGICAL TREATMENT OF CANCER OF THE STOMACH.—Wm. J. Mayo (*Jour. Amer. Med. Ass'n*, April 7, 1906).—The strongest appeal which has been made to the American medical profession for early surgery in this disease is embodied in the article at hand. The Mayos have a far greater experience in this line than any other surgeons in this country, and, consequently, what they say cannot be idly passed over, even by that small class of internists who consider themselves enemies of surgery on general principles. Dr. Mayo reminds us that cancer of the stomach cannot possibly get well if let alone, as an occasional appendicitis or other surgical disease may sometimes do. He says it is nothing but a crime

to treat these cases as medical at a time when there is still hope of radical intervention. Cancer of the stomach is found more frequently than it is in any other portion of the body, and we no longer have the frightful mortality attending radical operation which shocked and deterred medical men from recommending such treatment ten and twenty years ago. The mortality in experienced hands is now about 10 per cent, and in carefully selected cases it should hardly be over five. For the average case the operation known as Billroth No. 2 is the operation of choice, although there are a number of instances in which the Kocher technique, or even the Billroth No. 1, may be considered preferable. Kocher in his first seventy-five cases had six who had lived more than three years, one more than eight years, and one more than thirteen years. This alone disproves the criticism that it is impossible to cure the disease, but even those who did not remain well had an average existence of eighteen months in comfort. Much less can be said for patients who have been subjected to a palliative operation for this disease. Other authors of great experience tell of about the same results.

The Mayos have resected one hundred stomachs with fourteen deaths, having lost but one in twenty-five consecutive cases recently. They have 18 per cent well after three years, a showing which they consider exceedingly good when compared with cancer statistics for other portions of the body. The only possible way of making an early diagnosis is by exploration. Those cases are to be considered favorable in which a small tumor can be felt at the pylorus, since it is these cases which cause obstructive symptoms early enough to enable us to do something radical. A fixed growth and free fluid in the abdomen contraindicate operation.

The technique used by the Mayos is still about the same as that which is already well known by their former publications. It may be added, however, that they use the Kocher end to end union, when this is feasible, and are now doing a suture gastro-enterostomy, unless it is necessary to save time by using a Murphy button. Of their many operations for cancer of the stomach, only 26 per cent were early enough to allow a radical procedure.

SPONTANEOUS CURE OF AN ARTERIO-VENUS ANEURISM.—Lambert (*Bull. et Mem. de la Soc. de Chir.*, Tome xxxii.).—The history of this unique case is interesting enough to warrant a perusal in the original. However, a few of its details may be of value. The patient was a man, 28 years of age, who presented himself in the fall of 1904 with a traumatic arterio-venous aneurysm in the supra-clavicular region, as a result of a bullet wound. There was a swelling above the clavical, in which a thrill was very clearly manifest. It had the characteristic bruit, and there was no pulsation at the wrist on that side. Movements of the arm were possible although they were somewhat limited. One month after the patient was seen he returned to the hospital suffering from great pain in the member. The arm and hand were cyanotic, although, at this time, so much improvement was noted that no thrill or other unusual sound could be made out in the tumor. Ten days later the tumor was smaller

in size, and the tactile sense was the same on the two sides. Movement was becoming more and more free although the extremity was still cold and painful. As yet no pulse could be felt at the wrist. Two months after the patient was first seen, that is three weeks after the last note, there was no longer pain, the coldness of the extremity was decidedly lessened and nothing could be found at the side of the aneurysm. Still a month later the man was so much improved that he could recommence his work, and the only trace of the aneurysm remaining was the lack of the radial pulse. He was then pronounced perfectly well, and the seemingly impossible had been accomplished.

THE TECHNIQUE OF GASTRO-JEJUNOSTOMY.—Wm. J. Mayo (*Annals of Surgery*, April, 1906).—After years of work along this line Dr. Mayo has finally evolved an operative technique, which, he tells me in a personal communication, has been entirely satisfactory in a large number of cases. Having in mind the difficulties which attended the earlier methods, it is a relief to hear from so experienced and reliable an authority that we are no longer to expect the occasional serious accidents which formerly complicated every sort of gastro-enterostomy, in a few instances at least. He has had but one death in his last 136 operations, and the remarkable part of this is that he has done this large number in sixteen months. The Mayos have absolutely discarded all "loop" operations. In doing the Moynihan operation formerly the Mayos twisted the small intestine around its axis, as everyone else did who used this popular method, and had two cases of a regurgitation in fifty-eight operations. What they do now is to simply reverse the direction of the gut upon the posterior wall of the stomach, thus allowing it to fall back into the abdominal cavity and take its natural direction when the operation is complete. The two cuts shown in the article illustrate beautifully the point at hand, and for a correct understanding of the technique it is recommended that it be read in the original.

SO-CALLED ACUTE PANCREATITIS AND THE CAUSES OF THE FREQUENTLY FATAL END OF THE SAME. Doberauer (*Beitrage zur. Klin. Chir.*, Bd. 48, heft 2).—After reviewing histories of a large number of cases and making many experiments upon animals, the author comes to the following conclusions: This disease, when produced artificially in the dog, is very similar to that in the human, and, in consequence, we are able to state reasonably, by analogy, that the same holds good for the human as regards the cause of death in this disease, which has been experimentally proven upon the dog. Death is caused here by an acute intoxication with the chemicals which result from the breaking down of pancreas tissue in the course of this disease. We can by no means adequately explain these deaths simply by shock, or some nervous phenomenon. The author found the dogs died with all the characteristics of this disease when the pancreas was double ligated and cut in two. *There was blood in the peritoneum, between the same, and fat necrosis. Still there was no peritonitis and no germs could be found. When the pancreas from such an animal was transplanted into a second dog, it produced the same disease

in this animal. However, the transposition of a normal pancreas was followed by no such symptoms. The author does not know just what chemical it is that produces death in this case, and contents himself with naming it "pancreas toxin."

ORTHOPEDIC SURGERY.

IN CHARGE OF

NATHANIEL ALLISON, M. D.

THE IMPORTANCE OF SCOLIOSIS TO THE PRACTICAL PHYSICIAN.—Bologna (*III. Cong. Dell' Ass. Nazionale dei Med.*, 1905).—The author states that physicians in general fail to recognize scoliosis in its early stages, when treatment would be of avail, and also that scoliosis exerts a pernicious influence on the action and development of the thoracic and abdominal viscera, the distortion of the chest displacing the viscera and interfering with their functions. The thoracic motions are diminished and sometimes suppressed, so that breathing is at times almost entirely diaphragmatic. The right lung becomes compressed, especially posteriorly, where it is sometimes reduced to a thin layer of connective tissue; and the left lung shows compensatory emphysema. In 90 per cent. of the cases, the heart is enlarged, with or without dilatation of its cavities. The systemic circulation also offers resistance to the flow of blood in the aorta and the large veins. The liver suffers next to the lungs, and is forced to develop in a long rather than in a transverse diameter. The kidneys also suffer, the one on the compressed side being sometimes laterally compressed between the spine and chest walls. The kidney on the side of the concavity is hypertrophied. The contraction of the psoas may close the lumen of the ureter, and cause the kidney to become hydronephrotic. A somewhat similar condition may occur in the bile-duct. Gastro-intestinal symptoms result from intestinal displacement and enteroptosis. There is a mortality of 28.9 per cent. from pulmonary tuberculosis in scoliotics. This is about double the general mortality.

For treatment the author uses the apparatus of Schulthess for measuring and giving exercises. In certain progressive cases he is satisfied with its arrest. He says: "With the exception of the absolutely initial form, I have never seen a scoliosis completely cured; there always remain signs of the primitive deviation."

ACUTE DISEASES OF THE BONE IN CHILDREN.—Rose (*Scottish Med. & Surg. Jour.*, Apr., 1906).—Acute periostitis, osteomyelitis, acute necrosis and septic arthritis are spoken of in the text-books as distinct diseases with little or no relationship to each other. In British text-books, periostitis is spoken of as the primary disease. In continental text-books, osteomyelitis is regarded as the primary condition. In none of these text-books is any explanation given why the end of the bone is always the part first affected; nor is there any explanation why on operation the medulla is

often found healthy, when osteomyelitis was regarded as the early disease. If the primary disease were either periostitis or osteomyelitis, why is not the middle of the shaft of the bone sometimes first affected; and why might the lower end of the femur or the upper end of the tibia become diseased, without the knee joint becoming involved, when the hip joint never escapes when the head of the femur is affected? The key to the proper understanding of these conditions is to be found in the anatomy and histology of the tissues adjacent to the epiphyseal cartilage. Immediately below the epiphyseal cartilage, and on the diaphyseal side of the epiphyseal cartilage, as increase in the length of the bone is mainly from that point. Now if, on account of some injury, a small blood-clot has formed in that situation, and any germs circulating in the blood find a lodgment in the blood-clot, we are able to understand the various methods by which the different pathological conditions are produced. Pus forms, and to escape follows one of several routes. It may penetrate or burrow through the epiphyseal cartilage and the epiphysis into the joint. It may burst off the head of the bone. It may pass along the surface of the cartilage, and open by a small aperture into the joint. It may burrow below the periosteum, and passing down the shaft set up periostitis, stripping off the periosteum completely.

With such a pathology there can be but one form of treatment for this disease, namely, immediate excision. No time is to be lost, for a few hours may make a difference between success and failure. If the constitutional symptoms are severe, with great denudation of periosteum, amputation should be performed at once. Ordinarily, if pus be found, a search should be made for the opening in the bone by which it has got to the surface. If found, it should be enlarged. If not found, one should be made and the bone cavity carefully washed out with some sterile or antiseptic solution. As a result of incision and evacuation of the pus, the temperature falls, the pulse becomes slower, the pain passes away. Iron, strychnia and good food will help as constitutional treatment.

AN INEXPENSIVE MECHANICAL TREATMENT FOR ANTERIOR METATARSALGIA.—Young (*Boston Med. & Surg. Jour.*, Mar. 29, 1906).—Orthopedic surgery and gynecology would seem at first glance to be almost too widely separated in their scope to have any interdependence. However, women seek the specialist in diseases of women, referring pain to the pelvis, to the lower back and hips, for which pain, pelvic examination shows no adequate cause. Very often poor muscular development and improper shoes have been discovered to be at the bottom of these symptoms, coupled with faulty methods of standing and walking, induced by attempts to gain relief. Experimenting to convince himself that these pains were often not of pelvic origin, the author has found that a simple device to relieve the discomforts due to dragging down of the transverse arch of the foot has relieved the other symptoms also. The inside sole and plate are both somewhat costly, and often necessitate the purchase of larger shoes. He has adopted a method which does away with these drawbacks, and which is found to be within the

reach of many of moderate means. This method consists of inserting a piece of sole leather with bevelled edges between the inner and outer sole of the shoe, by raising the posterior edge and afterwards nailing it in place again. This leather pad should be placed so that its pressure is exerted just behind the head of the metatarsal bones.

GENITO-URINARY SURGERY.

IN CHARGE OF

H. McC. JOHNSON, M. D.

PRIMARY TUMORS OF THE URINARY BLADDER.—Davis (*Ann. Surg.*, April, 1906).—The cases which form the basis of this paper are taken from the clinical records of the Massachusetts General Hospital since 1877, and the autopsy records since 1897. There are included in this series of forty-one cases only primary tumors of the bladder which have been verified by either operation or autopsy.

From this study the following conclusions are drawn:

1. Stone in the bladder is not an etiological factor of importance in the causation of these tumors.

2. The condition of the underlying bladder-wall in regard to epithelial infiltration, is the most satisfactory and reliable guide in the determination of the benign or malignant character of papillary epithelial tumors of the bladder.

3. If the foregoing condition is accepted as the differential test of these growths then will the benign forms commonly called papillomata, be found to at least equal, if not outnumber, the malignant, the papillary carcinomata.

4. Recurrent epithelial tumors are not necessarily malignant.

5. Papillary tumors of the bladder, proved to be histologically benign, may rapidly lead to a fatal result if let alone.

6. Surgical intervention at the proper time in the case of pedunculated papillary tumors of the bladder offers a very fair chance of long immunity, if not of permanent cure.

7. The method of surgical intervention to be preferred in these cases, is excision of the tumor *in toto*, with a margin of bladder-wall at its base, including mucosa, submucosa, and muscularis in part; the section need not penetrate the entire thickness of the wall. In this way, a beginning epithelial infiltration of the base, if present, may be circumvented; or if it is not present, the knowledge of the fact is of great value in the important matters of diagnosis and prognosis. The defect in the bladder wall should be closed with sutures, which will at the same time control hemorrhage. The gravity of the operation is not appreciably increased by this procedure.

INJURIES TO THE VENA CAVA DURING NEPHRECTOMY.—Sagols (*Amer. Jour. Urol.*, April, 1906).—Hitherto experimentation has absolutely rejected ligation of the inferior vena cava. But out of seven cases recently

reported in which, during operation, the vena cava was injured and the vessel either sutured or ligated, four recovered and were cured. Thus Purpura undertook, through experimentation, to explain the discord between physiologic experimentation and clinical observation. He tried sudden ligature and slow ligature on dogs. The latter alone resulted in recovery of the animals by giving time for the supplementary circulation to become established.

In the three cases of total ligature of the vena cava reported as cured, the surgeons were dealing either with a neoplasm of the kidney or an enormous purulent pocket, which had developed in the gland itself. It was always noted that the tumor was adherent to the vena cava and it is very likely that, in all the cases, this vessel was compressed by the neoformed mass. Now in point of fact, are these not the conditions realized in the case of gradual ligature? The tumor soon commences to press on the walls of the vessel and diminishes its calibre and lumen. The presence of this gradual stenosis is an obstacle to the passage of the blood and a factor in the development of collateral circulation.

It may be said that in man, anastomoses between the portal circulation and that of the vena cava will be sufficient to assure the return of the blood to the heart after obliteration or ligature of the vena cava. In the female all observers recognize a very great influence and a marked preponderance of the uterine and ovarian venous plexuses, as well as a great importance to the utero-ovarian vein.

A very important fact from the surgical standpoint has been acquired, namely, that there are two methods of treatment of injury of the vena cava, namely suture and total ligature, which have given satisfactory results. The other procedures, namely, compression and lateral ligature, do not merit to be considered, because the inconveniences do not compensate the advantages derived by their use. Temporary clamping is not to be recommended. Total ligature is easier of execution than suture, on account of the depth of the wound. It goes without saying that ligature should not be used in all cases, although experimentally and clinically it would appear devoid of danger. The author advises total ligature in cases of wounds of the inferior vena cava when the vessel is injured below the point of entrance of the renal veins. But when the opening occurs in the vena cava at the entrance of the renal vein or above it, when the wall of the vein to be resected extends very high up, ligature appears to be absolutely contraindicated. To ligate the vena cava above and below the renal veins would be fatal, as physiology shows.

A NEW INSTRUMENT FOR THE CURE OF HYDROCELE.—Belfield (*Jour. A. M. A.*, April 7, 1906).—A special canula has been devised by the author for use in the following operation for hydrocele:

The distended scrotum is transfixed from above downward; after withdrawal of trocar and escape of fluid, the lower end of the canula is closed by the cap and the sac is distended with warm salt solution injected through the upper end. Removal of the cap allows the solution to escape; and this flushing of the sac is repeated until the escaping water shows only a trace of albumen by the nitric acid test. The cap

being replaced, an ounce or more (according to the capacity of the sac) of carbolic acid—pure or 95 per cent.—is injected, the scrotum thoroughly manipulated to secure contact throughout, and the acid allowed to escape; residual acid is neutralized by injection of alcohol; after escape of the latter the canula is withdrawn and punctures are sealed. Confinement to the house is unnecessary. The fluid which refills the sac in the next few days will be absorbed, but is better removed by a simple puncture.

This method employed in seventeen cases without recurrence, seems to offer all the good and none of the evil features of the various cutting operations for simple hydrocele.

GYNECOLOGY AND OBSTETRICS.

IN CHARGE OF
HUGO EHRENFEST, M. D.

ON PARAVAGINAL SECTION: WITH SOME ILLUSTRATIVE CASES.—Sir William Sinclair (*Journal of Obst. and Gyn. of the Brit. Emp.*, April, 1906).—Attention is called to this article here because it is probably the first detailed and clear description of the rationale and technique of this operation in the English language. The operation has been repeatedly mentioned in reviews given in this department. It is today one of the few recognized operations of uterine carcinoma. Invented about ten years ago by the surgeon Schuchardt of Stettin (in Germany) paravaginal section, better known as vaginal hysterectomy with paravaginal incisions, soon was adopted by many of the leading German gynecologists. "In striking contrast with these facts," Sinclair writes, "is the reception which the operation has met with in Great Britain and America. Whether this is due to the passive resistance which we offer to the immigration of new ideas in general—our backwardness which we euphemistically designate our conservatism—or whether the subject has unaccountably been overlooked, it is impossible to say with confidence. A weighty American volume *on the 'Practice of Gynecology,' with ten thousand illustrations, published last year, is devoid of any reference to Schuchardt's operation. Holding as I do to the firm conviction that the introduction of the paravaginal operation was a distinctly beneficial addition to the resources of operative gynecology, I look forward to the satisfaction of reading the records of much good work by colleagues in the British Empire."

COLLAGOL IN CASES OF PUERPERAL SEPSIS.—Buberl (*Wiener Klin. Woch.*, 1906, No. 10).—The author gives a detailed report of results obtained with collargol in 74 cases of puerperal infection observed in Chrobak's clinic in Vienna. The silver preparation was applied in some cases in form of a salve, in others dissolved in an enema, or in intravenous

*The writer undoubtedly refers to the book of Ashton, which, however, contains only ten hundred and forty-six illustrations.—(Ed.)

injections. In almost one-half of the cases also Marmorek's anti-streptococcic serum was injected. Buberl had the impression that in some instances the effect of the collargol seemed evident; he is, however, far from believing that this preparation could in any way be considered a specific remedy in the treatment of puerperal fever.

ECTOPIC DECIDUA FORMATION.—Taussig (*Surgery, Gynecology and Obstetr.*, March, 1906).—Besides the typical formation of decidua at the place of attachment of the ovum to either uterus, tube or ovary, we also find, in a considerable percentage of all pregnancies, decidual reaction outside the point of implantation, even at a considerable distance from it, and to this the author applies the term "ectopic decidua." Such ectopic decidua has been found in the cervical mucosa, in the non-pregnant tube and in the uterus in cases of extrauterine pregnancy, in both tubes in cases of uterine pregnancy, in the peritoneum, in the ovaries, omentum, appendix, serosa of intestines, in adhesive bands and in adenomyomata of the uterus. Various theories have been advanced for the explanation of this peculiar occurrence, but none of them, as the writer conclusively shows, is entirely satisfactory. Taussig points to the fact that this ectopic decidua formation is encountered only on the surface of the organs and, therefore, he is inclined to believe that the transformation of connective tissue cells into typical decidua cells is due to the spread of an irritating substance over the surface of those organs which show the decidual reaction. He suggests as such an irritating matter cellular detritus from the placenta which could pass out through the tubes and then would be distributed over the ovaries and the pelvic peritoneum.

THE MAGNET IN THE DIAGNOSIS AND TREATMENT OF GYNECOLOGIC DISEASES.—Sellheim (*Zentralbl. f. Gyn.*, 1906, No. 11).—The writer had the original idea of using the large electro-magnet, commonly employed by ophthalmologists, for the purpose of pulling the uterine fundus up to the abdominal walls. He forces the uterus to respond to the action of the magnet by introducing into the uterine cavity a thick iron dilator. The first experiments were made in the attempt of facilitating gynecologic diagnosis by bringing the uterine fundus nearer to the external hand which is palpating through the abdominal walls. But soon the author had occasion to observe that a retroflexed uterus in this manner would spontaneously rise into an anteverted position, and the idea suggested itself to use the powerful magnet for the purpose of stretching adhesions. Sellheim believes that there is a field in gynecologic diagnosis and therapy for the electro-magnet.

HYDATIFORM AND BLOOD MOLE.—Reisch (*Monatsch. f. Geb. u. Gyn.*, April, 1906).—Since Breus, in 1892, has described a peculiar degeneration of retained abortion ova, to which he has given the name "tuberous subchorial hematoma," many investigators have been interested in the histology and etiology of these moles. Only once such a mole has been found (by Micholitzer) which seemed to combine the characteristics of a tuberous hematoma mole with those of a hydatide mole. Another case of

this peculiar and certainly extremely rare variety is described in this article by Reisch. It seems from the history that the fetus died approximately during the fourth month of pregnancy and the dead ovum was retained for about eight months. The expelled mole was of the size of a fist. At the place of its attachment to the uterus chorionic villi could be seen transformed into the characteristic small vesicles. The interior of the amniotic cavity offered the typical appearance of a tuberosus hematoma mole. No trace of either fetus or umbilical cord was left. [See original article on Retention of Dead Ovum in this number.—Ed.]

PEDIATRICS.

IN CHARGE OF

ALFRED FRIEDLANDER, M. D.

RELAPSES IN MEASLES—Chardin (*These de Paris*, 1906) calls attention to the fact that relapses are not at all rare in measles. They may occur within a period which varies from five days to one month after the original attack, and may last as long as the original attack itself. The form of the relapse is independent of that of the original type of disease. Thus the attack may be typical and the relapse atypical or vice versa. The relapse may be hemorrhagic, even though the original eruption was not. The prognosis is generally good.

THE RATIONAL USE OF "INFANT" FOODS.—Sutherland (*The Clinical Journal*, abstr. *British Jour. of Children's Dis.*, Apr., 1906) classifies the artificial foods on the market as (1) peptonizing powders; (2) dried milk; (3) condensed milk; (4) starchy foods, partially or wholly converted. The starchy foods, from their composition, cannot be regarded as resembling mother's milk, or suitable for infants under nine months.

The chief indications for the use of artificial foods are three; vomiting, diarrhoea and wasting.

In vomiting, predigested milk is often tolerated when fresh milk is not. Dried milk and condensed milk, without cream, are also useful in these cases at times.

In diarrhoea, predigested, dried or condensed milk, with the addition at times of starchy foods, are often of value, when it becomes necessary to stop the use of fresh milk entirely.

Marasmus. Good results are sometimes obtained in these cases with peptonized milk, the peptonizing period being reduced to the shortest practicable period as improvement sets in. The predigested foods and the wholly converted starchy foods, are often valuable as additions to the dietary in these cases.

Where fresh milk cannot be obtained, or where the milk supply has fallen under suspicion, good condensed milk is probably the best substitute for the healthy infant.

The author lays down the following general rules: In acute illness,

a return to natural feeding should be made before the case is discharged. In chronic illness, no infant food should be used longer than is absolutely necessary. Where such foods have been used for more than two weeks, orange or grape juice should be given daily to avoid the risk of scurvy. And in such cases fresh cream or cod liver oil should be given as soon as possible, because of the known deficiency of prepared foods, in fatty elements. After the age of nine months, the risks attending the use of these foods are not so great, but they have no advantage over freshly prepared milk foods, porridge, bread and milk, puddings, etc. They do not aid in the development of the gastric functions, etc., as do the natural foods.

VACCINAL IMMUNITY IN CHILDHOOD.—From a study of various statistical tables of the results of vaccination—Comby (*Arch. de Med. des Enf.*, Mar., 1906) concludes that the immunity conferred by vaccination is at times lost very quickly. The duration varies very greatly in different subjects and we have no means of estimating this duration in a given case, even approximately. In the face of such variance prudence demands universal vaccination in times of epidemics, even of children who have recently been successfully vaccinated.

When a first vaccination is negative in a child, a second, a third, a fourth inoculation should be made if necessary, for it rarely happens that one does not get a positive result finally.

Even though it be admitted that vaccination and even re-vaccination will not in every case protect absolutely against smallpox, it should not be forgotten that any resulting infection in vaccinated cases is always mild.

THE USE OF CITRATE OF SODA IN INFANT FEEDING.—Shaw (*Archives of Pediatrics*, Mar., 1906) calls attention to the value of citrate of soda in infant feeding, as originally suggested twelve years ago by Wright, and more recently advocated by Poynton and several French pediatricists. Laboratory experiments have shown that in the coagulation of milk by rennet, the addition of weak solutions of certain alkalies, while not delaying the action of the rennet, nevertheless act upon the curd, precipitating it in small fine curds instead of in a solid mass. Citrate of soda in small quantities has a marked effect in thus breaking up the curd into small particles. Shaw's laboratory experiments, which are described in detail, confirmed the observations of Wright and Poynton. The clinical trial was also most satisfactory. Twenty-two institutional babies, nearly all undersized and underweight, some suffering from chronic indigestion, some from marked malnutrition, were given the soda. In some of these cases it was used as a last resort when all other methods had failed. Five babies lost in weight, of which number, one died. In the fatal case the feeding had nothing to do with the fatal result. Sixteen babies gained markedly in weight, one was stationary. In some cases there was an initial loss of weight on beginning the treatment. The control of vomiting in the cases of chronic gastric catarrh was one of the striking effects of the citrate. Poynton had also found the citrate to be

of special value in babies suffering from dyspepsia and vomiting. The effect upon the stools was variable, but in no instance were tough casein curds found in the stools.

The food mixtures used were very simple. The milk was diluted in proportions varying from three parts of water and one of milk, to three parts of milk and one of water. The water contained cane sugar in 5 per cent. solution. The citrate of soda (in solution) was added in the proportion of 1 grain to the ounce of milk. In some cases of habitual vomiting the citrate was increased to 3 grains to the ounce. Even in this quantity it does not impart any taste to the milk. The author believes that in cases of proteid indigestion, associated with vomiting and curds in the stools, the citrate of soda given in the manner described, has a distinct therapeutic value.

NEUROLOGY.

IN CHARGE OF

SIDNEY I. SCHWAB, M. D.

DISTURBANCES IN THE OCULAR DISTRIBUTION OF THE TRIGEMINUS ESPECIALLY THE CORNEAL REFLEX AND ITS DIAGNOSTIC VALUE.—Kempner (*Berl. klin. Woch.*, 13 and 14, 1906).—This paper is a comprehensive study of a subject upon which accurate information has always been desired. The author starts with a review of the anatomy of this region and points out that there is some uncertainty in regard to the exact distribution of the trigeminus in the supply of the eyelids and the conjunctiva. The following reflexes are considered in the study: The reflex closing of the lid, the corneo-mandibular reflex of von Solder, the reflex tear secretion and the reflex filling of the blood vessels of the bulbus. The clinical varieties in this region come under the head of irritative and paralytic forms. Especial attention is paid to the statement made by Oppenheim that a *reflexie* of the cornea is a symptom found only in tumor of the pons and medulla oblongata. The methods of examination are detailed by which these various deviations from the normal are obtained. The following material was made use of: 350 organic cases and 400 inorganic cases were examined with reference to the trigeminal region. The following results were obtained: 1. Total unilateral a *reflexie* of the cornea without sensory changes was found only twice, once in a peripheral facial paralysis and once in a case of hysteria, with sensory disturbances in nine cases, in five cases of which were tumors of the brain. 2. Total bilateral a *reflexie* of the cornea, three cases in tabes, tumor of the pons and hysteria. 3. Unilateral decrease in the corneal reflex was observed 27 times. 4. Bilateral decrease was seen in 14 organic and in 11 hysterical cases. 5. Pure sensory disturbance of the trigeminus in three cases and seven times in hysteria. The full data are thus summarized: (a) Organic reflex disturbance. 1. Generally unilateral. 2. It is usually combined with sensory disturbance,

which is limited to the trigeminus in one or several branches. 3. This, as well as the reflex disturbance, is generally progressive. (b) Functional reflex disturbance. 1. Usually bilateral. 2. The sensory disturbance is often lacking. If it is present it can not be limited to the territory supplied by the branches of the trigeminus. 3. Reflex disturbance and sensory disturbance are not progressive, but change about irrespective of any rule.

FORMS OF TABES DORSALIS WHICH ARE NOT FREQUENTLY DESCRIBED.—Lapinsky (*Deut. Zeit. f. Nervenheilkunde*, H. 3 and 4, 1906).—The author calls attention to the fact that some cases of tabes, especially in their earlier stages, show disturbances chiefly in the motor sphere and are not correctly diagnosed as tabes until long after this stage has passed. It has been more or less the custom to interpret these symptoms when they are recognized as due to the incoordination and not to a true paresis. In a case noted here by the author there was found in the preataxic stage a well marked paresis of the 'crossed variety in the upper and lower extremity. A number of cases are described in which the author's contention appears abundantly proven and he concludes as follows: There are cases of tabes dorsalis in which the symptoms in the earliest stages take the form of a paralysis or paresis in the motor system either in the upper or lower extremities. That these cases belong to the group of tabes dorsalis can at times be determined in the beginning by finding other evidences of tabes present, and at times the further development of the disease makes the diagnosis first possible. The motor symptoms in these cases must be reckoned in among the clinical symptoms of the disease tabes dorsalis.

HYSTERICAL FEVER.—Voss (*Deut. Zeit. f. Nervenheilkunde*, H. 3 and 4, 1906).—Two cases of hysterical fever are given in this article and the fact that hysteria was present in both cases is evident from the physical objective signs present. The author concludes as follows: 1. When the body temperature rises to hyperthermic it depends upon hysteria. 2. The fever symptoms are primary symptoms and do not depend upon the effects of increased muscular activity. 3. All appearances of vaso-motor diathesis (fever, edema, polyuria, skin affections) can be explained best upon the assumption that they are of cortical origin. 4. The diagnosis of hysteric fever can only be made when there is present no organic lesion which might account for the rise of temperature.

CRITICAL AND EXPERIMENTAL DATA ON THE TOXIN HYPOTHESIS OF EPILEPSY.—Schuckman (*Monat. f. Psych. u. Neurologie*, April, 1906).—This paper contains the results of an effort made to test the work of Ceni which appeared about four years ago. The gist of Ceni's investigations was that in epilepsy there was a specific toxin originating in the blood of epileptics to which the fit was due and further that such toxin could be recovered from the blood of epileptics and could be used to immunize against an attack in much the same way as other anti-toxins. Following this announcement there was much work done to determine the correctness of this rather novel view, for naturally it excited the interest

of physicians everywhere as offering the first definite plan for the understanding of epilepsy. Most of the work, however, failed to substantiate the results of Ceni and gradually this theory of epilepsy was regarded as unproven. In this paper the first part is devoted to a critical review of Ceni's work and the various theoretical considerations that sprung from it and then gives the results of the author's own investigations in the attempt to find out the facts. The results of his work are to entirely negative the theory which Ceni has so laboriously built up. He concludes as follows: Whatever the difference in the results that Ceni and I have obtained may be due to the fact that in no single instance was it possible to demonstrate the specific toxin of Ceni and would indicate that the beautiful theoretical system of Ceni must fall as all other theories before and after his must which will not stand the test of exact experimental methods.

OPHTHALMOLOGY.

IN CHARGE OF

JOHN GREEN, JR., M. D.

CONGENITAL FISTULA OF THE LACHRYMAL SACK.—Caillaud (*Arch. d Ophthalm.*, March, 1906).—After reviewing the few recorded instances in literature of this very rare condition Caillaud gives the following description of the case which came to his notice: A little girl, aged eleven, whose general appearance was suggestive of myxedema, presented two symmetrical fistulas about three mm. below and to the inner side of each inner angle. Pressure on the sack (which was not dilated) did not cause a flow of tears through the tiny openings. The orifices were so small as not to admit the tip of Bowman 1. Bowman 2, introduced through the punctum on the left side, could be passed readily to the nostril, after which an injection of fluid passed freely, some drops exuding from the fistulous opening. Owing to complete absence of the puncta on the right side it became necessary to ablate the accessory lachrymal gland in order to control the epiphora on this side.

Intrauterine dacryocystitis is believed by the author to afford the best explanation of the condition.

ANTEPARTUM OPHTHALMIA.—Stephenson and Ford (*Ophthalmoscope*, April, 1906).—To the thirty-seven cases already recorded in literature, Stephenson adds a series of seventeen cases observed by him personally. Stephenson assumes that cases developing within twenty-four hours after birth should properly be regarded as instances of antepartum infection in view of the fact that the shortest known period of incubation is forty-eight hours.

"Antepartum ophthalmia" implies "an inflammatory infection of the conjunctiva produced while the fetus is still in the uterus by the infection of a micro-organism, the incubation period of which has elapsed completely or partially, before the baby comes into the world."

Conclusions: (1) Instances of antepartum ophthalmia are not so uncommon as heretofore believed.

(2) About one-half of the cases (44.5 per cent.) are satisfactorily accounted for by a premature rupture of the membranes, allowing access of micro-organisms to the baby's conjunctival sack.

(3) In the remaining cases (55.5 per cent.) a slight injury to the membranes may determine access of micro-organisms, or infection through the uninjured membranes must be assumed to have taken place.

(4) Increased temperature of the conjunctival sack *in utero*, enhanced virulence of the causative micro-organism, feebleness of the babies, slight lateral tears of the membranes, position of the fetus in the maternal passages, and the condition of the placenta, cannot be shown to be connected with the causation of antepartum ophthalmia.

(5) Several of the so-called congenital anomalies of the eyes, as corneal opacities, staphyloma, microphthalmus, cryptophthalmus and lachrymal abscess, are probably to be explained on the theory of an intrauterine infection.

SYMPATHETIC IRRITATION FOLLOWING SUBLUXATION OF THE LENS.—Roure (*Ann. d'Oculist.*, February, 1906).—Published cases of this condition are very rare. Roure reports four cases as follows:

(1). A shrunken, cataractous, subluxated lens became fixed in the pupil in such a manner that half of it was behind, half in front of the sphincter. The irritation gave rise to energetic contraction of the pupil. A sympathetic irritation was soon manifest in the other eye, subsiding at once on removal of the dislocated lens.

(2). A cataractous lens in a child became subluxated as the result of a blow. Sympathetic irritation in the fellow eye subsided on removal of the lens.

(3). A subluxated calcareous lens in an atrophic eye gave rise to sympathetic irritation. Enucleation followed by disappearance of symptoms.

(4). A subluxated cataract (Morgagnian) rubbed against the posterior surface of the iris. Sympathetic irritation. Removal of lens followed by disappearance of signs of irritation.

The sympathetic irritation is ascribed to constant friction of the lens against the iris. Prompt removal of the lens is indicated.

AN IMPROVED METHOD OF MOUNTING EYE SPECIMENS IN FORMALIN SOLUTION.—P. Smith, (*Ophth. Review*, March 1906).—The writer uses a square upright stoppered bottle, the neck of which is as wide as the body. The divided eye is placed upright against one side of the bottle and is held in position by a background of thick white drawing paper in which is cut a round or oval hole to receive the back of the half eye, the space behind the paper being packed with small bits of absorbent cotton wool to keep the whole in place. The bottle is filled up to the shoulder with the solution and is tall enough for any air remaining in it or entering subsequently to be well away from the specimen, even when the bottle is held in a sloping position. The height gives room also for a label above the specimen.

DERMATOLOGY AND SYPHILIS.

IN CHARGE OF

MARTIN F. ENGMAN, M. D.

ON CASES OF HYDROA AESTIVALE OF MILD TYPE.—Adamson (*Brit. Journal of Dermatology*, Apr., 1906).—The writer is of the opinion that these recurrent summer eruptions, whether of the type of summer prurigo or of milder types of "hydroa aestivale," or of the severe class of hydroa vacciniforme," should be placed in one group and studied together. A better understanding of the milder types would throw light upon the more severe. While it is known that the eruption itself may be caused by exposure to light, there is reason to believe that other agents also may cause it, and this is a point which requires further study. The eruptions have no resemblance to the normal reactions of the skin to strong sunlight, viz., to erythema solare, and to browning and pigmentation, and they are probably dependent upon some abnormal general condition of which we are ignorant, but which renders the tissues susceptible. The fact that hematoporphyrin was found in the urine of three, possibly four of the reported cases, may have some etiological significance, which has not, however, been worked out. The affection, in some respects, may be compared with variola or with pellagra, which are general diseases, in which the skin eruption is modified or brought about by the action of light. Certain resemblances to the eruptions of lupus erythematosus and tuberculides may be pointed out, without suggesting any close affinity between them. In erythematosus the lesions are similar in their distribution, especially upon the exposed parts, the face, the ears, the hands, and they are notably influenced by exposure to weather, and have the same tendency to leave scars. Marked features of their histology are the increased vascularity and edema of the tissue elements; they are amicrobic.

Regarding tuberculides, their distribution on the face and limbs, their resolution with scar formation are comparable to the behavior of the papular lesions in summer eruptions. Possibly many so-called winter eruptions, which have been regarded as related to summer eruptions, are actually tuberculides. The author makes these comparisons without necessarily supposing any etiological relationship between these affections, but merely as a suggestion that in summer eruptions we have possibly also to do with some form of toxemia with lesions in the skin of an inflammatory but amicrobic nature determined by local causes, in this instance notably by exposure to ultra-violet rays, but possibly by other agents also.

THE CHANGES PRODUCED BY INFLAMMATION IN THE CONJUNCTIVA.—Mayou (*Hunterian Lectures*, 1905; *Brit. Journal of Dermat.*, April, 1906).—These lectures interest those who have studied the histologic changes in skin diseases. Developmentally and structurally the conjunctiva bears close resemblance to the skin. They are both subject to similar types of eruption, the conjunctiva, however, being more sensitive reacts more easily. The plasma cell is described and the vexed problem of its

origin discussed at considerable length. The author believes that plasma-cells are derived from the perithelium and endothelium of the blood vessels and that they are possibly slightly altered mononuclear leucocytes. He considers it impossible that plasma-cells have, as stated by Unna, their origin in fixed connective-tissue cells. It is becoming more and more generally accepted that the lymphocytes themselves may originate from the endothelium of the vessel walls, which are fixed mesoblastic cells.

PITYRIASIS ROSEA.—Montgomery (*Jl of Cutaneous Dis.*, April, 1906).—In this interesting article on pityriasis rosea the writer makes an analysis of 38 cases. On the diagnosis of the condition he makes the following remarks: In some case it is impossible to make the diagnosis between seborrhœa annulata and pityriasis. There are the same light red rings with buff wrinkled centers in both affections. Usually, however, the rapid distribution of the rosy rash is sufficient to differentiate the affections. In measles there are the severe constitutional symptoms, the catarrhal affections of the nose, throat and bronchi, the presence of the rash on the face, an unusual situation for pityriasis rosea, and the absence of the rings with the buff colored wrinkled center. In German measles, because of the slighter constitutional symptoms, the diagnosis may be more difficult, but there is the same absence of the peculiar rings. In the diagnosis between pityriasis rosea and the roseola of syphilis, the gravest errors may occur. The diagnosis is especially imminent if the patient has at the same time a venereal sore together with a fresh, rosy eruption of pityriasis rosea. The first search should be for the "primitive patch," and if that cannot be found then a careful examination should be made for small red rings with the skin in the center buff colored and wrinkled. The wrinkling otherwise unobservable in the early stages can sometimes be demonstrated by placing the thumb and finger on opposite sides of a patch, and then opening them so as to put the skin on the stretch. There is also sometimes in syphilis a red ringed eruption with a desquamating center that simulates closely a pityriasis rosea. It is a rare eruption, however, and occurs much later than the roseola of syphilis. The desquamative green soap used to be the favorite treatment and seemed to give good results. With a moistened hand green soap is rubbed into the whole skin from the jaw downwards, once or twice a day for six days. During another six days the patient simply powders the skin with some indifferent powder while waiting for the separation of the shrivelled upper epidermal layers. On the twelfth day from commencing the treatment a bath is taken for the first time, when the whole upper epidermal layers, together with their flora, are shed. A modification of this treatment is to add two per cent. of naphтол to the green soap. This mixture is rubbed in twice a day for two or three days, and not for six days, as in the former case. This treatment is disagreeable, oily, and irritating, and is not nearly so pleasant or so effective as that recommended by Allen Jamieson. For quite a long time the author has been using with satisfactory results Jamieson's treatment published by Walker in his "Introduction to Dermatology," as follows: The patient should be soaked daily for half an hour in a bath

to which two or three teaspoonfuls of Condyl's Fluid have been added, after which

Acidi Salicylici 3. to 5.

Vaseline 100.

is applied to the skin.

ON THE PATHOLOGY OF BROMIDE ERUPTIONS.—Pasini (*Annals de Derm. et Syph.*, Jan., 1906).—The author says that histologically the lesions of this eruption are always the same, whether they may be so clinically or not. The variety most frequent is the papulo-pustule in the form of acne occurring in the portions rich in vascularity and sebaceous glands. The toxic substance is the free bromine which penetrates into the circulation coming in contact with the tissues and there exercises a double action, a chemo-tactic action and the attraction of leucocytes, and a degenerative action which is exercised upon the connective tissue cells. This article is a very long one, giving in detail the histological findings and the literature pertaining to the subject.

REMARKS ON THE PREPARATION OF COLORLESS TAR ("Anthrasol").—Toff (*Monatsch. f. Prakt. Dermat.*, Tm. XL., p. 638).—This preparation contains the phenols and the hydrocarbons of tar, is of syrupy consistency, very fusible, of a yellowish color and with the characteristic odor. The principal advantages over the ordinary tar is its easy application, rapid penetration and without staining the epidermis. The itching dermatoses are favorably influenced by the alkaline solution. It can also be used in soaps and in parasitic conditions of the skin. Eczema, seborrhœa and pruritus vulvæ were treated with success. Its action is far less irritating than that of ordinary tar. The following formulas are utilized by him:

Anthrasol and Lanolin 5 gm.

Glycerine of Starch 50 gm.

Anthrasol 3 gm.

Zinc paste 50 gm.

Anthrosal

Sulphur Precipitate

Saponis Alkalini

Glycerine aa..... 10 gm.

Vaseline

Lanolin aa..... 15 gm.

Anthrasol 5 gm

Talc

Oxide of Zinc aa..... 100 gm.

BOOK REVIEWS.

ESSENTIALS OF THE PRACTICE OF MEDICINE. SAUNDERS' QUESTION COMPEND. W. R. Williams, M. D. W. B. Saunders & Co., Philadelphia and London, 1905.

This little compend contains in a condensed form the important points relative to those diseases with which the practitioner meets most often. At the end of each chapter is a series of questions for the benefit and instruction of the student. Saunders' question compends are well known and fill a certain need admirably.

MANUAL OF CHEMISTRY. A guide to lectures and laboratory work for beginners in chemistry; a text book specially adapted for students of medicine, pharmacy and dentistry. By W. Simon, Ph. D., M. D. Eighth Edition, thoroughly revised. With sixty-six illustrations, one colored spectra plate. Lea Brothers & Co., Philadelphia and New York. 1905.

The work is admirably adapted to the needs of the physician, being especially arranged for the student of medicine. It is divided into seven parts devoted to the following subjects: (1) Chemical Physics, (2) Principles of Chemistry, Results of the Attraction Between Atoms, (3) Non Metals and their Combinations, (4) Metals and their Combinations, (5) Analytical Chemistry, (6) Consideration of Carbon Compounds, or Organic Chemistry. The illustrations are unusually good, especially the colored plates representing the chemical reaction.

MAN AND HIS POISONS. A practical exposition of the causes, symptoms and treatment of self poisoning. By Albert Abrams, A. M., M. D. Illustrated. E. B. Treat & Co., New York.

The author maintains that man is constantly standing on the brink of a precipice and continually on the threshold of disease; that every moment man is exposed to the danger of being overpowered by poisons generated within his system. He endeavors to reduce the symptomatology and treatment of these conditions to a definite science.

PROGRESSIVE MEDICINE. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M. D. Lea Brothers & Co. Six dollars per annum. March 1, 1906.

This number forms the first part of the 8th volume of this well known publication. It contains the following review articles: Surgery of the Head, Neck and Thorax, by Charles H. Frazier; Infectious Diseases, including Acute Rheumatism, Croupous Pneumonia and Influenza, by Robert B. Preble; Diseases of Children, by Floyd M. Crandall; Rhinology, Laryngology, by D. Braden Kyle; Otology, by Alexander Randall.

DISEASES OF THE STOMACH AND INTESTINES. By Boardman Reed, M. D. Illustrated. E. B. Treat & Co., New York.

In presenting this work, the author gives as his reasons that no single volume in the English language treats of the whole subject of diseases of the stomach and intestines from the standpoint of our present knowledge. He has endeavored to present a not too bulky volume, containing brief but easily

intelligible descriptions of the best tests in the examination of stomach contents and feces, and the least disturbing methods of determining the position, size and mobility of the stomach, colon, etc., displacements of the abdominal viscera, together with a study of pathology, ætiology, symptom and diagnosis of gastro-intestinal diseases. All of this the author seems to have accomplished. The work is divided into four parts; the first deals with anatomic, physiologic, chemic and diagnostic data, the second with methods of examination, the third with methods of treatment, and the fourth to what he pleases to term the gastro-intestinal clinic—in other words, the special diseases of the gastro-intestinal tract.

GYNAECOLOGICAL DIAGNOSIS. A Manual for Students and Practitioners, by Arthur E. Giles, M. D., F. R. C. S. Ed., M. R. C. P. London. With 35 original illustrations. New York: William Wood & Co. 1906.

"The expert diagnostician makes the most successful practitioner in any department of medicine and surgery. Once the diagnosis is established, the question of treatment is relatively easy; if still in doubt, one can refer to a treatise, look up the condition diagnosed, and find the appropriate treatment adequately set forth." These introductory remarks of the author contain a truth which is not generally appreciated. A better instruction of the student in diagnosis more than anything else would tend to solve the proprietary medicine problem which at present disturbs the mind of so many leading physicians of this country. A practitioner who during his medical training continuously has been impressed by the practical importance of diagnosis and has been equipped with that knowledge which will enable him to make one, is not likely to treat his patients symptomatically. English physicians have the reputation of being close and keen clinical observers, and, therefore, seem predestined to write good books on the diagnosis of diseases. The volume before us undoubtedly is a good specimen of such a book. The text matter is arranged according to leading symptoms, and this is an excellent plan. The style is concise and clear, and it is due to this fact that the author was enabled to consider his subject in a most complete manner within the comparatively small space of 207 12mo. pages, an advantage quite evident in comparison with those large-sized volumes which have been published in this country and in Germany on the subject of diagnosis of gynecologic diseases.

LECTURES ON AUTO-INTOXICATION IN DISEASE OR SELF-POISONING OF THE INDIVIDUAL. By Ch. Bouchard, Professor of Pathology and Therapeutics in Paris. Translated, with a Preface and New Chapters added by Thomas Oliver, M. D., F. R. C. P. Professor of Physiology, University of Durham. Second Revised Edition. F. A. Davis Co., Philadelphia. 1906. Price, \$2.00 net.

Since Bouchard himself did not feel inclined to do so, Oliver considered it his duty to "bring up to date" and modernize the classic work of Bouchard, first published in 1887. Oliver has undertaken an impossible task. Our present views of auto-intoxications certainly are based upon those ingenious investigations made by Bouchard, but they are so radically and essentially different from what Bouchard has said twenty years ago, that it seems a hopeless undertaking to add all the new knowledge "in braquets." First of all, such a modernization would have necessitated an elimination of all that which is not any longer in accord with modern science. This Oliver has neglected to do. We read on page 4 that proof is nearly established that *blennorrhagia* is a parasitic disease. On page 7 such terms as "hereditary transmissibility of an acquired diathesis," "scrofulous diathesis" or "arthritis" are still used. We find on page 9 the sentence: Is it not among the scrofulous that you see *erysipelas* repeated with a truly disheartening frequency? We could add innumerable other quotations to prove that Oliver's "additions" have not brought Bouchard's book up to date. We suggest another translation of the original work, one without addenda, one which will enable the English speaking physician to admire that great genius, Bouchard.

HANDBUCH DER GEBURTSHILFE. Herausgegeben von Professor F. von Winckel in Muenchen. Zweiter Band. Erster Theil. Verlag von J. F. Bergmann in Wiesbaden.

This first half of the second volume of the most gigantic work on obstetrics ever written is a book of 650 pages.

The volume begins with a continuation of the "History of Gynecology," written by the editor, Professor Winckel. The next one hundred pages bring a most exhaustive consideration of the physiology and dietetics of the puerperium from the pen of Dr. Knapp in Prague. He divides the subject into four chapters: Physiology of the Puerperal Condition; The Processes of Involution; Therapy of the Normal Puerperium; The Diagnosis of the Puerperium: Its Medico-Legal Aspects.

L. Seitz of Muenich next takes up the question: Physiology and Dietetics of the Newborn Infant. The last 300 pages contain numerous monographs pertaining to the various aspects of "Pathology and Therapy of Pregnancy." We quote a few of these contributions: Diseases of Vulva, Vagina and Cervix During Pregnancy, by O. Schaeffer of Heidelberg. Prolapse and Pathologic Antiflexion of the Pregnant Uterus, by R. v. Braun-Fernwald. Pregnancy in the Malformed, in the Retroflected, in the Myomatous, in the Cancerous Uterus. Pregnancy in the Presence of Inflammations, of Tumors in the Uterine Appendages, in the Presence of a Tubal Pregnancy, a. s. o. by Wertheim of Vienna. H. W. Freund, Meyer-Ruegg of Zuerich and Winckel take up the complications of pregnancy with various diseases.

We trust that one of the progressive publishing houses of the United States will soon arrange for an American edition of this monumental work.

DAS RUECKFALLFIEBER. Von Primararzt Dr. Hödlmoser. Würzburger Abhandlungen aus dem Gesamtgebiet der praktischen Medizin. Würzburg. A Stuber's Verlag (C. Kabitzsch). 1906.

The last work of the late Dr. Hödlmoser was the preparation of this excellent monograph. Stationed for some years in Sarajevo, the chief city of Bosnia and Herzegovina, where relapsing fever is rife, his personal experience with the disease was unusually great. Any one interested in relapsing fever and its spirochæte will find this monograph indispensable. The discussion of the various points still in dispute, such as the cause of the afebrile periods, is particularly excellent.

A PRACTICAL TREATISE ON SEXUAL DISORDERS OF THE MALE AND FEMALE. By Robert W. Taylor, A. M., M. D. Third Edition. Thoroughly revised, with 130 illustrations and 16 plates in colors and monochrome. Lea Brothers & Co., New York and Philadelphia.

The appearance of the third edition of this book stands as a compliment to the author for the admirable manner in which he has handled these delicate questions.

Many new sections have been added and much that the progress of the times has made necessary has been incorporated. The work has thus been much improved and extended.

GENITO-URINARY SURGERY AND VENEREAL DISEASES. By J. William White and Edward Martin. Illustrated with three hundred engravings and fourteen colored plates. Sixth Edition. J. B. Lippincott Company, Philadelphia and London.

The comprehensive scope of this work, embracing as it does genito-urinary surgery, genito-urinary diseases and syphilis, makes it most valuable for the student, the practitioner and the specialist. It is handsomely illustrated, thoroughly up to date, and has been most carefully indexed.

Special attention may be called to the conservative and sound, yet full views, of the authors. They have wasted neither word nor space in meaningless dis-

cussions or quibbles of strained points, but whatever procedure is suggested and recommended may be relied upon as tried and good. Whether one wishes to consult the work in regard to the usual practice in the most complicated surgical operation, or to find out the latest and best treatment of the simplest affection of the genito-urinary organs, he will here see all fully considered.

CLINICAL TREATISE UPON THE PATHOLOGY AND THERAPY OF DISORDERS OF METABOLISM AND NUTRITION. Professor Carl von Noorden. Translated by Florence Buchanan and I. W. Hall. Number VII. Diabetes Mellitus, Its Pathological Chemistry and Its Treatment. E. B. Treat & Co., New York, 1905.

The work of von Noorden on diabetes is too well known to need any comment. This small work of about 200 pages contains the most recent observations with reference to metabolism in diabetes mellitus and the treatment of diabetes. This little volume is in every way as satisfactory as the previous six volumes that have appeared.

THE PRACTITIONER. Special Diet Number, April, 1906. The Practitioner, Limited, 149 Strand, W. C., London.

This magazine, published monthly, has justly gained a prominent place among the medical periodicals. Each number contains, in the form of special articles, a review of subjects that are of vital interest to the physician. This number is devoted to Dietetics. There are fourteen special articles on diet in chronic heart disease, in acute illness, in renal disease; gout, rheumatism, obesity, consumption, epilepsy, diseases of the stomach and intestines, skin etc., etc., and each is written by an authority on the subject. Such work as this in medical journalism is to be highly commended.

DISEASES OF THE ANUS AND RECTUM. By D. H. Goodsall, F. R. C. S. (Eng.) and W. Ernest Miles, F. R. C. S. (Eng.). In two parts. Part II. Longmans, Green & Co., London. 1905.

Some time ago we had occasion to point out the many commendable features of this new treatise. Like in Volume I, the writers have limited themselves to set forth only those methods of treatment which they personally have found the most satisfactory. The topics discussed in this volume are the following: Prolapse and Invagination of the Rectum; Ulcerations, Strictures, Malignant Growths, Benign Tumors of Anus and Rectum, Foreign Bodies in the Rectum, Pruritus Ani, and Syphilis.

MODERN CLINICAL MEDICINE: DISEASES OF METABOLISM AND OF THE BLOOD, ANIMAL PARASITES. Translated from "Die Deutsche Klinik" by Julius L. Salinger, M. D. New York and London: D. Appleton & Co. 1906.

It was inevitable that the excellent series of monographs by German scientists and clinicians, under the title of "Die Deutsche Klinik," should be promptly translated. We have in English no adequate discussion of the constitutional diseases which treats adequately the problems connected with their etiology. These treatises, written by men who are absolutely the masters, each in his field, form today the best presentation of the subject. Among the contributors are Weintraud, v. Noorden, Naunyn, Gerhardt, W. Ebstein, Ewald, Reiss, Benda, Itis, Blumenthal, Lazarus, P. Ehrlich, Grawitz, v. Leube, Senator, Litten, Peiper, and v. Jaksch—truly a brilliant galaxy. The book should be on the shelves of every progressive physician who cannot avail himself of the original. The reader will extract much amusement from the article on blood examination by Lazarus. The editor of the series, R. C. Cabot, is himself an authority in this field and has frequently interpolated in brackets his own views, often diametrically opposed to those of the essayist. The result is sometimes rather ludicrous.

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ORIGINAL ARTICLES.

GROSS ABNORMALITIES OF THE APPENDIX VERMIFORMIS NOTED IN 3550 AUTOPSIES.

BY AIME P. HEINECK, M. D., Chicago, Ill.

Anatomical, pathological and clinical data concerning the appendix vermiformis are always of a practical interest to the medical practitioner. The frequency of pathological conditions in this organ, be they of a degenerative, of an inflammatory or of a neoplastic nature, is responsible for the many studies which have appeared on the appendix vermiformis.

There are normal conditions, locations, sizes and general relations of the appendix. Any deviation from the normal we consider abnormal. How can the nature and the frequency of these abnormalities be determined, be they abnormalities in location, in size, in general relation, in anatomical integrity? By the comparison and the discussion of observations made in the dissecting room, on the operating table and in the post-mortem room. This paper is based exclusively on observations made in the latter. The post-mortem records of 3550 consecutive and unselected autopsies, held in the Cook County Hospital, between January 1, 1893, and December 30, 1905, inclusive, were examined. These post-mortems were held on patients who died in the institution. An autopsy in this institution can only be held in the absence of protest from friends or relatives. No special space in the records was allowed to the appendix until the year 1896. Before that time the nature, the frequency and the importance of inflammations of this organ were not as fully understood and as fully appreciated as they are now.

The frequency of adhesion of the appendix vermiformis to neighboring structures and organs impressed us.

The appendix vermiformis was found adherent to neighboring structures or viscera 486 times. It was not possible to determine accurately in what proportion of cases the condition of "adherent appendix" was due to a previous inflammatory process of the appendix, or to a previous inflammatory process extending to the appendix from adjacent structures, in which it had originated. These adhesions are of interest to

the clinician, to the pathologist and to the surgeon. They are frequently the cause of obscure (obscure as to correct interpretation) abdominal pains (adhesions to colon, to small intestines, to abdominal wall); of digestive disturbances (adhesions to stomach, liver, gall bladder). They may be the cause of vesical, of rectal tenesmus (adhesions to the urinary bladder, to the sigmoid flexure of the colon, to the rectum).

Adhesions can lead to kinking, to twisting, to obstruction of the appendix, to interference with its circulation, to impairment of its peristaltic action; can be the means of extension of an inflammatory process from the appendix to the structure or organ, to which the appendix is adherent; can make the appendix serve the office of a band over which a loop of intestines may become kinked, or beneath which a coil of gut may become looped. In either case intestinal obstruction or strangulation results. The appendix may lie concealed in a mass of adhesions.

In 145 cases of chronic adhesive appendicitis examined and analyzed at the Boston City Hospital, 118 showed no evidence of any abdominal condition to which adhesion could be referred, other than a prior inflammation of the appendix. Hence, they can be considered cases of primary chronic adhesive appendicitis. In 27 cases other sources for the adhesions could be ascertained (secondary chronic adhesive appendicitis), as salpingitis, hydrosalpinx, myoma of uterus; in 3 cases, carcinoma of uterus, with other pelvic structures; in 3 cases, disease of the gall bladder; in 2, tubercular peritonitis, etc.

These adhesions always prolong the operative intervention and may lead the surgeon to completely modify his technique in appendectomy.

For instance, in those cases in which the appendix is so closely adherent to the wall of the cecum that it appears almost a part of it, and cannot with safety be separated from it. In such cases, the appendix may be split lengthwise, and its mucous membrane removed and ligated at its junction with the cecum, and the wound in the appendix sutured.

The analysis of 486 cases in which the appendix was adherent shows the following:

- Appendix adherent to cecum in 357 cases.
- Appendix adherent to psoas muscle in 44 cases.
- Appendix adherent to hernial sac in 5 cases.
- Appendix adherent to omentum in 16 cases.
- Appendix adherent to small intestines in 18 cases.
- Appendix adherent to ascending colon in 10 cases.
- Appendix adherent to parietal wall in 18 cases.
- Appendix adherent to brim of pelvis in 8 cases.
- Appendix adherent to rectum in 2 cases.
- Appendix adherent to sigmoid flexure in 1 case.
- Appendix adherent to stomach in 1 case.

Appendix adherent to liver in 2 cases.

Appendix adherent to urinary bladder in 1 case.

In the cases in which it was adherent to the psoas muscle, in some the course of the appendix was parallel to the long axis of the psoas muscle; in some, transverse to it; in others, oblique.

In cases of adherent appendix not included in the above, the appendix was adherent to more than one structure.

Cunningham says: "The following locations of the appendix vermiformis have been considered normal by one or more observers: (1) Over the brim, into the pelvis; (2) upwards behind the cecum; (3) upwards and inwards towards the spleen." In these 3550 cases it is reported that the appendix was located partially or wholly in the true pelvis 155 times. This fact shows the utility of rectal and vaginal examinations in suspected cases of appendicitis; it explains the frequency of pelvic abscesses in suppurative inflammations of the appendix vermiformis, and the rupturing of some of these abscesses into the uterus, into the rectum, into the urinary bladder, etc.

The appendix vermiformis was found in a hernial sac five times, cases 6182, 6924, 5245, 5344, and in case G. B., June 26, 1896. In each of these cases we are dealing with a right inguinal hernia. In one, the appendix was the only viscus present. In two others, a part of the cecum was present in the hernial sac with the appendix, and in the fourth, small intestines and the appendix vermiformis formed the contents of the hernial sac. All these hernia were irreducible, owing to the presence of adhesions. In one of these cases (5245) many concretions were found in the appendix.

The appendix was retroperitoneal in 12 cases. A retroperitoneal appendix is liable, if it becomes inflamed, to cause a retrocecal or retrocolic abscess. Retroperitoneal vermiform appendices play an important part in the causation of subphrenic abscesses.

Kelly and Hurdon say: "The question whether the appendix is an intraperitoneal or extraperitoneal organ is chiefly decided by the position it assumes in relation to the cecum or colon, whether it is downward or upward; or, in more correct expression, early fusion between the colon and the posterior abdominal wall is apt to produce an ascending or retroperitoneal appendix, while late fusion brings about a pendant intraperitoneal appendix."

In case 5259, patient six months old, the appendix was found in the ascending colon. The lower end of the ileum had passed upward through the ileocecal valve with the cecum into the colon. The appendix at its attached end had been inverted with the bowel. The half below the constriction was gangrenous.

Case 6432. In this case the appendix was herniated through its own mesentery. It was not the seat of adhesions.

In case 5750, a case of gangrenous appendicitis, the cecal end of the appendix opened into a large abscess cavity in the liver. The opening in the appendix corresponded to the site of the liver abscess.

In twenty cases the appendix was partially or completely obliterated. It is said that total obliteration of the canal insures perfect immunity from further attacks of appendicitis, but that if any portion remains pervious there is an increased disposition to other attacks. In nine of these cases the obliteration was due to an inflammation, in the others it was not determined whether the obliteration was inflammatory or involutionary in nature. In one case constriction was proximal to a concretion; in another the appendix contained mucoid material distal to the constriction; in one the end distal to the constriction contained pus.

The appendix was found kinked in twenty cases. Some of these bends and kinks were due to inflammatory adhesions; some were due to a shortened meso-appendix. In ten of these cases the kinking was inflammatory in origin; in the others, reports are too meager to state the causes. Constrictions of the appendix were noticed in nine cases. They were all due to previous inflammation of the organ.

In these reports no case of supernumerary appendix is recorded. No case of absence of the appendix not attributable to appendectomy or sloughing was seen. The absence, due to operation of the appendix, was noted twenty-one times.

The size of the appendix is more variable than its position. Kelly and Hurdon agree with Ribbert, Berry and others in placing the average length of the appendix at about 8.3 cm., or between three and three and one-half inches. Schlange, in von Bergmann's *Practice of Surgery*, gives the average length as 9.2 cm., equal to three and one-half inches.

In case 6656, the length of the appendix was $\frac{1}{2}$ cm.

In case 6791, the length of the appendix was 3 cm.

In case 7073, the length of the appendix was 3 cm.

In case 6107, the length of the appendix was 21 cm.

In case 5616, the appendix was normal, but was nine inches in length.

In one case (patient, Isaac Williams, posted April 26, 1895), the appendix is recorded as having been ten inches long. Long appendices are frequently bent upon themselves or drawn up by the shortness of their mesentery into various bizarre forms, figure-of-eight, or spiral.

Foreign bodies were found in the appendix vermiformis as follows:

Grape seed, one case.

Fish bone ($1\frac{1}{2}$ inches in length), covered with concretions, one case.

Enteroliths, twenty-five cases.

By enteroliths we understand fecal material which has undergone desiccation. The ordinary or normal appendix may contain fecal material similar to that found in the adjacent large intestine. Bryant found fecal matter in 70 per cent of his adult specimens. In some of the cases reported above, the enteroliths were single, in others multiple. In case 5030 there were two large and several small concretions.

In these 3550 autopsies the appendix vermiformis was reported to have been the seat of tubercular lesions ten times: cases 3507, 6701, 5275, 5421, 6499, 6504, 6779, 6225, 5104, 5982. A fact worthy of note is that in each and every one of these ten cases the tubercular lesions in the appendix coexisted with tubercular lesions elsewhere in the organism; that in all of these cases tuberculous pneumonitis of one or other variety was invariably present. Not one of these cases of tuberculous appendicitis was primary. These were all secondary, either by continuity of tissue, as extension from tuberculosis of neighboring coils of intestine, or by vascular transplantation. We are forced to state that the tuberculosis of the appendix vermiformis is but exceptionally primary and isolated. In four of these cases the organ was free, was non-adherent; in six it was adherent to some neighboring structure. In some of these cases the tuberculous process in the appendix vermiformis had led to the formation of caseous areas; in others, to ulcer formation; in others, simply to the formation of tuberculous granulation tissue. In some the process was limited to the internal coats; in others, to the external coats; in others, it involved all the coats. In all these cases the tuberculous appendicitis was not productive of symptoms sufficiently marked to lead to its diagnosis during life.

Twice (cases 5305, 5912) the appendix was the seat of typhoidal disease. In both of these cases typhoidal lesions in other parts of the abdomen coexisted (intestines, mesenteric glands, spleen). In case 5305 there were submucous hemorrhages; in case 5912 ulcers were present.

In case 5272 there was a cavity between the folds of the meso-appendix communicating with the lumen of the appendix, and containing thick pus.

The appendix was found to be the seat of acute inflammation (non-suppurative in character, that had not been pus producing) forty-one times. In six cases pus was found in the cavity of the appendix, that is, in six cases we had an empyema of the appendix.

The appendix vermiformis was found to be the seat of neoplastic disease three times (cases 6200, 6178, 6002). In each of these cases the neoplasm was a carcinoma. In each of these cases the appendix had been involved secondarily by the neoplastic process. In each the pri-

mary tumor was in the stomach. Benign neoplastic or sarcomatous change in the appendix was not found in any case. In two of the cases reported the tumor was apparently secondary by vascular transplantation; in one secondary by extension by contiguity. (Appendix was adherent to stomach by tumor mass.)

The following shows the great improvement in the understanding of indications for operation in appendicitis, and in the performance of the various operations for this condition that has taken place during the last decade:

Between the years 1893 and 1896 there came to the autopsy table at the Cook County Hospital nineteen cases, which had been operated upon for appendicitis, and in which suppurative peritonitis was present; while between the years 1896 and 1905, inclusive, there only came to the autopsy table five such cases.

The operation performed in those days is best understood and appreciated by the following, taken from the post-mortem records:

Case of L. Jackson, March 20, 1895.—In right iliac region wound is found 7 cm. long, partly closed by sutures. Through this incision protrudes a loop of intestine and a gauze drain; appendix was found adherent to psoas, and had a perforation at lower third. (Operation for appendicitis.)

Case of L. Jones, examined February 10, 1895.—In abdominal wall in median line an incision of about four inches in length was found packed with iodoform gauze. Omentum and intestines found matted together. Appendix found bound down to psoas and red in appearance. Constriction about three-fourths cm. from tip. (General suppurative peritonitis.)

Case of J. G. Simons, February 4, 1893.—Appendix, colon and omentum found adherent to right iliac region. Appendix surrounded by granulating tissue. Looks, on separating adhesions, like a large ulcerating cavity.

Case of Joseph Kubat, April 7, 1895.—In right lower quadrant, eight-inch scar is found; omentum adherent to peritoneum under scar. Appendix present and adherent to abdominal wall.

These post-mortem records affirm the following facts concerning the appendix vermiformis:

1. That it is almost always an intraperitoneal organ; exceptionally, it is extraperitoneal, and then, usually, only partly so.
2. That it has been found in nearly every portion of the abdominal or pelvic cavities.
3. That it may form the contents or part of the contents of a hernial sac.
4. That its presence in a hernial sac does not render it immune from the lesions to which it is subject when normally located.
5. That it may be adherent to any intraperitoneal organ or structure.

6. That it may be adherent to some extraperitoneal structures, kidney, retrocolic cellular tissues, etc.

7. That pathological conditions have been found which seem to indicate that inflammations can extend from it to neighboring organs and structures to which it is adherent, and vice versa.

8. That in the diagnosing of obscure abdominal and pelvic conditions the probability of a previous or of an existing appendicitis must be considered.

9. That pus may be present within the cavity of the appendix, within the walls of the appendix, or the condition of peri-appendiceal abscess may occur.

10. That inflammations of the appendix may terminate in resolution, in adhesion formation, in obliteration of the appendix (partial or complete), in interstitial thickening, in gangrene, ulceration and perforation of the organ; may terminate in suppuration.

11. That one attack of appendicitis predisposes to other attacks, until complete obliteration of the lumen of the appendix has taken place.

12. That the condition of supernumerary appendix does not occur.

13. That congenital absence of the appendix, if it occurs, is so infrequent as to be ignored, from a clinical standpoint.

14. That the appendix may vary in length from $\frac{1}{2}$ cm. to 26 cm.

15. That the lodgment of foreign bodies in the lumen of the appendix is an infrequent occurrence, only two cases, excluding enteroliths, having been observed in 3560 cases.

16. That neoplastic disease of the appendix is uncommon. We are inclined to think that neoplasms of the appendix are almost always secondary, either by continuity or contiguity of tissue, or by vascular transplantation. We have never met with a primary case. Some primary cases, however, have been reported.

17. That this organ may be the seat of lesions of the same nature as can occur in other portions of the alimentary canal, viz.: typhoidal, tubercular, actinomycotic, dysenteric, etc.

18. That tuberculous appendicitis is almost invariably secondary.

19. That the lessened frequency during the last decade of diffuse suppurative peritonitis following operations for appendicitis is due, first, to more exact diagnosis; second, to earlier operation; third, to excision of the appendix and of its mesentery in cases not complicated by periappendiceal abscess; fourth, to better and more perfect technique on part of operator.

20. To limiting the surgical intervention in cases of periappendiceal abscess to incision and evacuation and drainage of the pus cavity, if the appendix be not easily accessible.

TALMA'S OPERATION FOR CIRRHOSIS OF THE LIVER.*

By ELSWORTH SMITH, M. D., and N. B. CARSON, M. D., St. Louis.

Mr. W. M. S., 35 years, molder by occupation, entered the St. Louis Mullanphy Hospital September 10th, 1905, giving at that time the following history:

Family history: negative.

Previous history: usual diseases of childhood.

No history of lues.

Habits: Has used alcohol to excess since eighteen years of age. From age of twenty-one to twenty-three years he was a barkeeper and during that time drank heavily. Since then it has been his habit to go on sprees of from seven to ten days' duration every six to eight weeks, during which time he would take no nourishment at all. His preference was for whiskey rather than beer.

Present trouble began one year ago last October, with what he thought was malaria. He experienced chilliness along the back, coming on about 6 or 7 o'clock p. m., followed by a fever at about 8 or 9 p. m., which fever continued through the night, passing off toward morning in a sweat. The sweating ceased last January, but chilliness and fever continued until about two weeks before his entrance in the hospital. Has not had any cough. Just about two weeks before coming to the hospital he first noticed the onset of a swelling in his abdomen. Has practically been confined to his bed for the past three months.

Before June last his appetite and digestion had always been good between his sprees. While drinking, he would in the morning have nausea with vomiting of greenish fluid. About the 10th of last June he vomited two teaspoonfuls of blood. No other history of hæmorrhage from either stomach or bowels. No hæmorrhoids.

Physical examination: Patient presents the typical picture of hepatic cirrhosis with his emaciated frame and his apparently large, fat abdomen, which is as large as that of a pregnant woman at full term. The distended superficial abdominal veins point to portal obstruction. All the signs are present of fluid in the peritoneal sack. The boundaries of the liver and spleen cannot be made out satisfactorily on account of the great abdominal distention, due to a large collection of ascitic fluid. Lungs and heart normal.

Urine: Specific gravity 1020; trace of albumen; no sugar; no casts.

September 13th. As patient has been suffering from pressure effects of ascitic fluid he was tapped today, and two gallons of fluid removed. Examination of this fluid from a cytodiagnostic standpoint showed prepon-

*Read before the St. Louis Surgical Society, January 17, 1906.

derance of endothelial cells, and small round cells. No tubercle bacilli found.

September 19th. Patient improved greatly after paracentesis, but now abdomen is filling again rapidly.

September 22nd. Two gallons and one quart of ascitic fluid were removed by tapping today. Examination immediately afterwards showed upper boundary of liver, at sixth rib, in the mammary line; indurated border of liver could be distinctly felt about one inch below costal arch, but no nodulations could be detected; lower border of spleen extends about two inches below margin of ribs.

September 29th. Despite treatment by way of diuretics and hydragogue cathartics, etc., abdomen is again filled and two gallons of fluid were removed today; and while paracentesis has appeared to afford relief for the time being, still patient has been slowly but steadily losing ground, so that Talma's operation is suggested to him, and as he gives his consent, he is transferred to Dr. Carson's service.

At the operation the diagnosis of hepatic cirrhosis was verified, and no evidence of tuberculosis found; and while prior to operation, from September 10th to September 29th, a period of nineteen days, paracentesis was required four times, since the operation on October 5th to this date, a period of three and one-half months, tapping has been called for only once.

His weight, which in June last was 118 pounds, and it must have been much less than that just prior to operation, was, on January 5th, 1906, 124 pounds. His average weight had been 150 pounds.

He is now able to go about everywhere without even the aid of a cane. Has a good appetite and digestion, sleeps well, and has no abdominal distress from ascites. There is still some fluid in the peritoneal sack.

The only thing patient now complains of is a feverish feeling at night, but the thermometer has not shown a rise over 99.2.

So far the good effects of the operation in this case are certainly quite apparent. In estimating, however, the results of the operation in general, we are met by rather conflicting statistics, due, it would appear, to a misconception, oftentimes of the purpose and the limitations of the procedure.

In the first place it should be clearly kept in mind that the operation is not for the relief of cirrhosis of the liver, but for only one of its symptoms, though, of course, one of its most important ones, and, therefore, the integrity of the liver cells must always be sufficiently retained to carry on the metabolic processes necessary to life; for the simple turning of the portal into the systemic blood current, will not, of course, remedy an intoxication due to deficient liver function. In fact, quite the contrary, for the operation has precipitated such a texæmia by diverting too suddenly from the liver blood charged with toxines destined to be destroyed in the liver pa-

renchyma. On the other hand, should there be sufficient liver tissue remaining to prevent such an auto-intoxication, a regeneration of liver cells can take place under the more favorable conditions of the newly established collateral circulation.

The operation, therefore, it would appear, should be made early, and some even advocate a resort to it in the pre-ascitic stage, if the diagnosis can then be made on gastro-enteric hæmorrhage and enlarged spleen.

Secondly. Talma's operation purposes to relieve only transudations into the peritoneal sack, and, therefore, the differential diagnosis must be clearly drawn so as to exclude all exudates from inflammatory processes, especially chronic peritonitis from tuberculosis, malignant disease. Especially must we have in mind tubercular peritonitis, which so frequently complicates hepatic cirrhosis, and in doubtful cases it would appear best to first tap the abdomen under aseptic precautions, and if the patient's condition be not urgent, to await the result of inoculation on the lower animal; though, of course, abdominal incision in tubercular peritonitis is, I believe, rather curative than otherwise.

Thirdly. We must remember too, that there is apparently an increasing number of clinicians who deny that ascites is due to portal stasis, and who rather consider it to be a product of a general toxæmia of hepatic origin, whereby transudation is favored of the serum of the blood through the vessel cells, developing a condition of lymphagogue action.

In support of their position they state the following facts:

First. That ascites does not occur early in the disease, when the pressure in the portal vein is highest and leads to gastro-enteric hæmorrhage from rupture.

Second. That experimental ligation of the portal vein does not develop ascites.

Third. Cirrhosis may exist for years without ascites, which may at last appear quite suddenly.

They also claim that the first effect of the operation is to increase the toxæmia by depriving suddenly a greater quantity of the blood of the antix-toxic liver action.

This, in fact, is shown in Eck's fistula. In this experiment the portal vein is resected in the portal fissure, the proximal end tied and the distal end short-circuited into the inferior vena cava, and as shown by Hahn, Nasse, Nencki and Pawlow in the day the procedure produces a condition akin to uræmia, especially if the animal be fed meat. How then, can Talma's operation do good?

G. R. Turner and H. D. Rolleston (1899) have answered this query thus:

First. By somewhat diminishing the blood current through the liver it may enable the organ to deal more satisfactorily with the blood passing

through it, and thus reduce the toxæmia on which the ascites and other bad symptoms depend

Secondly. That the presence of vascular adhesions over the surface of the liver would relieve venous engorgement of the organ and so allow a more free supply of arterial blood, whereby the nutrition of the liver cells would be improved, and be placed in a better condition to undergo compensatory hyperplasia.

Thompson has suggested that the operation may prevent ascites by the simple method of producing universal peritoneal adhesions, and thus obliterate the peritoneal cavity.

That this is possible is shown by the cases of Dickenson and Weber, in which ascites disappeared, and cirrhosis and universal peritoneal adhesions were found at autopsy.

It seems, however, difficult to explain on the basis of ascites, in hepatic cirrhosis, being due to a general toxæmia that the dropsy, in the vast majority of cases should be limited to the area of distribution of the branches of the portal vein; though adherents of the toxæmic theory appear to claim that often the dropsy begins in the feet. This, however, has not been our experience.

In this connection it is of interest to note that efforts have been made to compensate for the loss of liver function and thereby control the serious toxæmic symptoms by administering to these patients fresh liver tissue or extracts, as in disturbances of the thyroid gland.

Cregny gave, in hepatic cirrhosis, one gramme of liver extract in milk, in addition to the ordinary diet, and seven grammes of nitrate of potash; with which treatment he obtained a cessation of hæmorrhages, of ascites and œdema.

With the same treatment Hirtz observed a good result in one case of hepatic cirrhosis (Cregny, *Medical Annual*, 1905), in which the organ became apparently almost normal. In two other cases he saw no greater improvement than with ordinary treatment.

Hirtz reported a second case subsequently, where a man suffering from alcoholic cirrhosis was cured by giving 100 grammes daily of fresh pig liver along with milk diet. In this case the urine rose and œdema completely disappeared; previously, under milk diet and calomel, no improvement had been noticed.

After the above considerations we are, perhaps, better prepared to appreciate the statistics on the operation, which are as follows:

Neuman,¹ in a case of hepatic cirrhosis with ascites curetted the parietal peritoneum and omentum and stitched the two together; after many months distinct dilatation of the vessels of the abdominal walls resulted, and ascites had not returned.

Rolleston and Turner² operated on two cases, in one of which ascites had not returned three and one-half months later.

The status of the operation as given by Packard and La Conte^a—1901—based on 22 cases, is as follows:

Immediate death.....	7 per cent.
Ultimate death.....	7 per cent.
Unimproved	14 per cent.
Recovered	64 per cent.

Scherweneky⁴ has reported a successful case.

J. B. Roberts,⁵ two immediately fatal cases.

Herman Kummell⁶ reported seven cases, with two deaths from exhaustion immediately after the operation, and two deaths some time later; while three survived, as did also their ascites.

Grisson operated on a case with a high degree of ascites who was afterwards able to work actively for two years before his death.

George Brewer⁷ reports five cases with four fatalities. He, however, collected sixty cases from the literature, with 38 recoveries.

Baldwin⁸ reported three cases of which one recovered and two died. In one of the latter the patient lived three and one-half months with no return of ascites.

In 1902 Grenough⁹ collected 122 cases in which the operation had been made; after deducting 17 in which the disease was not cirrhosis, and one in which the result was not given, there remain 104; of these 31 died within thirty days of the operation, and 29 were in no way improved, so that sixty, or 57 per cent., either had their life shortened or else received no benefit; forty-four, or 42 per cent., were improved, and of these nine were living and in improved health two years after the operation.

Lejars¹⁰ collected 78 cases with 36 deaths; disappearance of ascites in 28, and notable improvement in 14.

At the French Congress of Surgeons in the autumn of 1904, M. Monprofit had collected 224 cases, of which 129 were cures, 84 had died and 11 were doubtful.

Contrasting the worst and best aspects of the operation, as gathered from all sources, it would appear that the percentage of mortality would be somewhere between 40 and 60 per cent. The outlook, of course, on the old expectant plan of treatment is almost certain fatality.

October 5, 1905. Operation performed by Dr. N. B. Carson.

Anæsthetic chloroform. Abdomen re-prepared. Incision six inches in the median line of the abdomen from the ensiform cartilage to near the umbilicus. The right rectus muscle was pulled to the middle line and the peritoneum opened.

Considerable ascitic fluid escaped from the abdominal cavity. The liver was somewhat enlarged and was also nodular, showing evidence of some contraction. Adhesions had formed between the liver and the an-

terior abdominal wall, and also between the spleen and the peritoneum. There was also adhesions about the gall bladder but no stones. The omentum was much contracted and shortened.

The upper surface of the liver and the adjacent surface of the peritoneum was freely rubbed with a sponge on a holder. The round ligament was sutured to the anterior abdominal wall, thus bringing the surfaces of the liver and the peritoneum closer together. A portion of the omentum was then stitched up between the liver and the peritoneum, another portion was brought out of the peritoneal cavity and sewed between the rectus muscle and the peritoneum. The wound was closed. A small suprapubic incision made in the median line and a cigarette drain inserted. Moist bichloride dressing applied.

October 27, 1905. The abdomen was tapped on account of the accumulation of ascitic fluid and five quarts of a turbid fluid withdrawn. The abdomen has not been tapped since that time.

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 CRIMINAL ABORTION.*

By JOHN M. GRANT, M. D., St. Louis.

It is a lamentable fact that a large proportion of the women of today object to raising children. So serious—in fact, so appalling has the condition become that the President of the United States has considered it his duty to sound a warning note.

My experience is, that over 35 per cent. of the pregnant women try to terminate the pregnancy artificially; some observers make the percentage a great deal higher.

One of the reasons advanced by the women is that there is no life in the fetus until the movements are felt, therefore no crime against the laws of God and of man has been committed. Dozens of reasons are given, such as poverty, drunken husbands, social obligations, ill-health, "have been

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told by physicians that parturition would be fatal," and so on down the whole category of excuses.

We are often told, "Oh, yes, Doctor, I am anxious for children, but this is not a convenient season. The World's Fair is coming; a trip has been planned; or a new home is being built."

It is thus that the women try to justify their acts.

As civilization advances, the crime increases. In the populous centers the percentage of criminal abortions is much greater. Those of us who were born in the country, in the sparsely settled districts, can well recall the large families. In my boyhood in the country, every family had from six to twelve children; to be a barren woman was considered a disgrace. How different we find it in the large cities! Families of from one to three children are the rule. If it were not for the large families of the foreign element, and the distant country regions, the death rate now would probably almost reach the birth-rate. Woe betide any country whenever such a calamity happens. That nation is as certain to decline as the night is certain to follow the day. Criminal abortion is not the only cause for small families, but it is beyond the scope of this paper to discuss any other. There is a disposition to place all the blame for the abortions upon the women. They doubtless deserve the lion's share of censure, but not all of it. The husband is sometimes the more guilty of the two.

Vividly do I recall the case of Mrs. K., whom I was called to see and found in collapse; she had attempted to produce abortion at the urgent request of her husband. Evidently the crochet needle which had been used had perforated the uterus. She died within six hours from the time I saw her, never recovering from the collapse. Death occurred within twenty-four hours after the attempted abortion. Of course, such sudden and violent deaths are rare.

Another woman attempted to justify herself in producing abortion by declaring that her husband threatened to leave her if she had any more "brats." He said, "Other women get rid of them and you have got to do it."

These two cases are only mentioned to show where some of the blame lies.

Pregnant women are encouraged in these acts in various ways. One can hardly pick up a daily paper without reading dozens of thinly disguised advertisement advising women what to take and whom to consult in order to become "regular." Again women go around and tell each other of so-called harmless devices and remedies, and to consult certain midwives and doctors. It is thus young women are encouraged to jeopardize their own lives and health, without a thought of the crime being committed.

Dr. Frederick Griffith, of New York, has bought, in the public places

of Paris, instruments to produce abortion. He bought them of street venders, in drug stores, grocery stores, in fact, everywhere. He says that anyone can buy them just as easily. In this country, they can be obtained not so readily, but without any difficulty.

Thousands and thousands of abortions are produced, of which physicians never hear. Many women make a regular habit of introducing a catheter or some other instrument, if the menstrual flow is a few days late. This is sometimes done for years with impunity. Others go regularly and have their wombs "opened" as they express it. Many drugs are advertised as being "sure regulators." The consumption of these is simply enormous. I have several times been called to see women who were desperately sick as a result of taking these drugs. There is no doubt that abortion is sometimes produced by drugs. The woman is made severely ill, and the fetus poisoned, or its vitality so lowered that the uterus eventually expels it.

Tansey tea, pennyroyal pills, and some forms of mercury seem to be the favorite remedies, but abortions produced by medicines are comparatively few; the vast majority are the results of the use of instruments.

I have treated over 250 cases of criminal abortion. Of these, only ten were in young, single women. Of course, we are bound to sympathize with the young girl who commits the criminal act in a desperate effort to save herself from everlasting disgrace; but why—I say it with all due reverence—why, in the name of God, will married women, some of whom, at least, have happy homes, good husbands, and pleasant surroundings, with all that goes to make an ideal existence, why? I say, will they commit such heinous offenses? Yet statistics prove beyond all doubt that the very people who are in the best shape to care for large families seem to fight the hardest against having them.

Perhaps 75 per cent. of the abortions seen by me responded promptly to treatment. These cases were seen early before any severe infection had started. In each case the uterus was promptly emptied and thoroughly douched. When possible to introduce it, the finger makes the ideal dilator, and the best curette. The fewer instruments used the better it is for the patient. The curette is liable to open a new focus for infection. The uterus can be swept thoroughly by the finger, and the douche will remove any little particles left. Of course if pregnancy has only existed for five or six weeks and no infection begun, a blunt curette is perfectly reliable.

In about 15 per cent. of my cases, the patients had already had repeated chills, hot fevers and were violently infected. In these cases the uterus was, of course, emptied and cleansed. Antistreptococcus serum administered, repeated douches given, bichloride poultices with hot stoves kept over the abdomen, and absolute rest enforced. If necessary, morphine

with strychnine was administered hypodermically. So far as internal medication went, small doses of calomel were my favorite.

These cases usually recovered in from three to twelve weeks, but there was a certain percentage of cases in which an exudate was thrown out, and an enormous amount of inflammatory thickening developed. In three of these cases the abscess that formed bursted into the vagina, and the patients made good recoveries. In three, I opened abscesses through the vagina and the patients ultimately recovered.

Mrs. S. sent for me in May, 1898. She was 25 years old and had always been healthy. She had three healthy children. In the two years prior to this, her womb had been opened three times by a notorious abortionist, and she had aborted with difficulty and had consulted no physician. Five days before I saw her, she had visited this abortionist and had her uterus opened. She immediately began to have fever and pain. She had missed one menstrual period and another was due. For fifteen weeks her temperature ranged from 102 to 105; an inflammatory mass developed in her pelvic cavity and extended almost to the umbilicus. The treatment was carried out along the lines already suggested. After being in bed nearly five months, she was able to sit up. It required nearly fifteen months before she obtained a fair degree of health. About a year ago I examined her and found the uterus slightly movable, being fixed by many adhesions; but she was in good health. It is needless to say that she has never been pregnant after that abortion.

Mrs. L. gave this history: The day before sending for me she had inserted a catheter into the uterus. Shortly afterwards she had a chill, followed by fever and violent pains. When I reached her, the temperature was 105, pulse 140. She was instantly chloroformed and the contents of the uterus removed. A piece of the catheter about one inch long was extracted with the fetus from the uterus. The uterus was emptied and douched. Her temperature remained around 106, and she died within 36 hours. There was no injury to the uterus. I know that the patient was well before the attempted abortion, because I had been in the house every day for two weeks attending a boy injured by a street car.

There are two classes of people who are guilty of producing these abortions. One class consists of the notorious midwives and doctors who for love of filthy lucre murder these unborn babes. These persons are so debased and so lost to all that is true and noble in life, that they are held in utter contempt and abhorrence by every right thinking man.

The other class consists of certain members of the medical profession, who are generally considered to be men of repute. It is a disgrace to our profession that any member of it should have so conducted himself as to justify the suspicion that he was an abortionist. Yet if common report be true, certain men are guilty. As proof of this I report the following instances:

About a year ago, a young eighteen-year-old girl called at my office and with great embarrassment, and confusion, acknowledged that she was three months pregnant and wanted something done at once to produce abortion. Following my usual tactics, after satisfying myself that she was pregnant, I first explained to her the hideous criminality of such an act, and then told her to go home at once and tell her mother her condition, and to marry the young man who was responsible for it. She promised to obey. Some two months afterward I was called to the house to see another member of the family. The mother thanked me profusely for giving the girl such good advice. But she had taken her to their former family physician, who felt very sorry for her, and for a good fee produced an abortion. Think of it, a supposedly reputable member of our profession committing such an act. No less than six women I have attended for abortion informed me that the act had been committed by a certain physician. These women were unacquainted with each other, and their statements must have been true. Several similar instances could be mentioned, but these will suffice to prove my point.

It is very difficult to get the women to reveal by whom the abortions were committed. They will seldom tell in the presence of a third party, and always impart the information in strict confidence. The majority of women refuse utterly to tell. Knowing these facts, the abortionist follows his infamous business almost with impunity. It is a notorious fact that abortions are being daily committed, yet how seldom is the guilty party convicted. The physician may be morally certain as to the identity of the guilty party, but legal proof is wanting. If the victim lives she refuses to testify in court; if she dies she cannot. Ante-mortem statements can seldom be obtained. Occasionally a woman boasts of the fact that she can have the best medical talent if trouble follows her abortion. This at once suggests the question, what is the proper stand for a physician to take when called to an abortion. Is he to assume the role of public prosecutor and act as though she were a criminal? Or, should he in these cases, as in all others, follow the mandates of his noble profession, to relieve human suffering, to prolong life and when possible to save life? This is a question open to debate. My personal opinion is, that no matter how much the physician may despise the abortionist or his victim, it is his first duty to attend that patient regardless of all other considerations.

The question arises, "What can be done to at least check, if not stop the ever-rising tide of abortion?"

The physician, the minister, the legislator, can each do something towards stemming the tide.

The physician must teach first of all that life exists from the moment of conception. The acquisition of this knowledge would prevent many women from committing such acts. He must teach the woman not only the danger to her life, but the long train of ailments that often follow;

he must convince her that no reputable physician will produce abortion, that she places herself in the hands of the unskillful and the unprincipled; she must be told that when the time comes, as it often does, when she desires to have children, it may be too late. The grossly insulted uterus either refuses to become pregnant, or it promptly expels the fetus. Many of us have attended women, who, after losing an only child, would give all their earthly possessions to have another; we would find that they had systematically endeavored to prevent conception or had produced abortion until it was no longer possible for them to have children.

Ministers of all religions have great influence with their followers. So far as I know, the Catholic church is the only one that persistently and systematically fights this evil. This is one of the reasons for the rapid growth and prosperity of this church. If all of the churches would combat the evil with the same vigor and perseverance, the good accomplished would be of inestimable value to our country.

Legislators should enact laws that would help. First of all, newspapers and periodicals should not be allowed to publish any of the thinly-veiled advertisements encouraging abortion.

A conference of legislators and physicians could doubtless devise some laws that would prove salutary in checking the evil.

Most of you have, doubtless, read the powerful article entitled, "Let Us Go Back," recently written by F. Hopkinson Smith. In this matter under consideration, the present generation must be taught, "Let us Go Back," to the principles of former days, and it will be better both for us and for posterity.

MASSAGE IN NEUROSES.

BY J. F. MENESTRINA, M. D., St. Louis.

Neurasthenia is defined by neurologists as a general neurosis dependent on an exhaustion of the nervous system. It is an exaggerated and ever ready excitability of the nervous elements with an absence of functional resistance; with a tendency to a sudden tired feeling and a rapid loss of nervous energy.

Neurasthenia has been called, par excellence, the disease of the century.

The greatest number of neurasthenics are found in the large business centers, where the tumult of life, excitation of the spirits, ambition to succeed above all others, entail sacrifices of body and mind which bring about a rapid nervous exhaustion.

That this condition is influenced by heredity, no one questions. It is a well-known fact that a large percentage of these sufferers consists of literary men, scientists, students, business men, professional men, who so culpably neglect themselves and plunge into exaggerated mental

work. This excessive intellectual fatigue united with insufficient rest is usually not adequately compensated for by nutrient nitrogenous alimentation, restoring sleep, and out door exercise and recreation. As a rule these people rarely spend over 15 minutes at a lunch counter, talking business, while crowding bits of cold food into their stomachs. The pace these poor unfortunates set cannot but cause the above described results. It is eminently considered an American disease, for nowhere is it so alarmingly prevalent, as in this country.

As a rule neurasthenics are anemic. The nerves being poorly nourished by alteration in the essential constituents of the blood, are frequently subject to series of explosions of energy in the form of neuralgias. There is no doubt that an exhaustive state of an acute infective process also paves the way to this condition, and that auto-intoxications have an important relation in the etiology of neurosis in general. So much has recently been written by Vaghen, Conca and others in regard to this, that a resume would hardly seem necessary. It would be well to mention that these authors attribute the cause of these affections primarily to digestive derangements, such as, a diffused catarrhal state of the stomach with all its sequels of pirosis, acidity, ectasis, coprostasis, diarrhea, etc. They, however, admit that the chemistry of digestion is known to us only to a very limited extent. What relation the intimate chemistry of this vital organic function bears to disturbances of the nervous system and its relative absorption, constitutes as yet a missing link in the chain of our present etiological knowledge.

Other sequels to auto-intoxication are the different forms of neuralgias and the more severe forms of neuritis.

It would be well to mention a few of the causes of these painful conditions, namely, traumatism, resulting in direct mechanical injury to the nerve through blows, wounds, tumors, pressure, etc.

Exposure to cold, tuberculosis, syphilis, bone diseases, blood infection due to bacterial toxins. These conditions are also found as sequels to typhoid fever, diphtheria, malaria, metallic poisons, such as lead, arsenic, mercury and vegetable poison, such as alcohol, opium, tobacco, etc.

Malassimilation of food due to hurried or defective mastication, combined with mental worry, breathing of vitiated air, insomnia and a series of shocks to the nervous system through excesses is in my estimation the chief cause of neuroses in general. Individual idiosyncrasy must be present, however.

These dyspeptic neurasthenics and suffering patients get as a rule, but little sympathy from the average physician and we frequently turn them away from our offices through lack of tact or inability to retain our interest and patience during their long recital of ailments, and get to the bottom of the real cause of their neurosis. They would be the easiest

patients to retain if patience and judgment were used. They represent a class that is daily on the increase. They are usually in good circumstances, comprising the cream of our men of commerce, educators, and professional men, in short, the brain workers. They are entitled to and should receive our interest and sympathy.

Let us pause for a moment, and see what becomes of them, when they find no relief from us. Perhaps some of our readers have been rebuked occasionally by these patients that their remedies failed to relieve their sufferings, when on visiting an osteopath, they were promptly benefited.

The eyes of our regular friends must by this time be opened to the fact that a set of men claiming osteopathy as their art, are trying to elbow their way into the ranks of the profession. Its exponents are pretty well scattered through all the states and the success they have attained thus far, is surprising.

They are daily increasing in number. Next year's curriculum I understand has been increased to four years, at their institution in Kirksville, Mo.

The majority of our regulars still regard osteopathy as a fad; they claim it will have a short life. Perhaps it may, but their cult originated about 25 years ago, and from present prospects it bids fair to continue to thrive.

Their method of treatment consists of systematic massage, joint movements, nerve stretching and "leg pulling." Neurasthenics usually flock to every new fad, but in this particular one, they rush in, and no doubt receive some benefit.

The osteopaths have a pretence or smear of anatomy, physiology, pathology, chemistry, psychology and they claim a very liberal medical education.

As a matter of fact they have little or no knowledge of any of these subjects, but they understand and study the wants of these patients, and no doubt the results they obtain are through massage and passive movements, a lesson the medical profession must learn, and its members will do well not to underestimate its value. The majority of the intelligent regulars have as yet sadly neglected to give scientific massage a conspicuous place in therapeutics, and are content to dismiss a patient with a prescription, usually a sedative or hypnotic, without getting after the real cause of his trouble, and favoring its removal. No greater mistake can be made by the profession to persist in this pernicious, old practice, many poor sufferers from neuroses have been started on bad drug habits through our haste in prescribing, before investigating the origin of the morbid condition.

As stated above auto-intoxications play a conspicuous part in the etiology of neurosis. Elimination seems to be the logical cure. No bet-

ter eliminant exists than massage, such as is used and practiced by Swedish therapists. Thanks must be given to these confreres, who for years have taken the lead in this line and have carried it to the point of perfection.

Massage is said to have been originated by the Chinese 3000 years B. C. The only authentic record we have is a French translation of a Chinese work, "The Cong-Fon of the Tro-dse," that appeared in press about 135 years ago. This was probably the foundation of the present Swedish method of massage and Swedish movements since so elaborately systematized by Ling. It had been in use by the Hindoos and Persians, and the ancient Greeks and Romans were not slow in recognizing its value. These sturdy ancient races owed a great deal of their mental and physical attainments to gymnastics, massage, bathing, etc. They believed in *Mens sana in corpore sano*.

Today massage and Swedish movements has a recognized place in our modern therapeutics. No doubt some of the better informed of our profession direct patients to masseurs, but how lamentably few. The range of usefulness of massage in various forms of neurosis is so unlimited and its results are so marvelous that it is a pity that the majority of the profession do not take it up. As an eliminator of waste product such as toxins, auto-intoxication, etc., and an up-builder of cellular tissue it has no equal. It is especially useful in all forms of poor nutrition and deranged digestion, neurasthenia, rheumatic conditions and neuralgias in general.

Laymen still confuse massage and Swedish movements with the treatments given by the so-called bath house "rubber," magnetic masseur or masseuse with lady assistant so often brazenly advertised in our daily press. It is our duty when possible, to correct these impressions.

It would be to our interest if the profession in general began to realize that we have sadly neglected this most important branch of our modern therapeutics, especially with regard to neurasthenics. While we have been blind, they have been wide awake, and in the nascent new fad of osteopathy, no doubt have sought benefit for their ills. Without any question a certain mental impression is made on these sufferers by their methods, but I insist that massage and gymnastics are responsible for three-fourths of their brilliant results. These osteopaths unquestionably have appropriated, or as Swedish masseurs claim, robbed them of their method, simply adding a few artistic contorsive and spectacular joint stretchings to a wise look and a superficial display of technical knowledge in fundamental branches of medicine to enhance it. The offices of these new fad exponents are usually neatly and comfortably equipped, with fine office outfits, luxurious couches and general attractiveness; what they lack in knowledge is more than made up in appearance.

The chief clientele that patronize them is of the better element, an

element that by our lack of tact, sympathy and patience we drive away daily from our offices.

Some of our neurologists have been for years advocating the general use of massage and Swedish movements. Dr. Frank Fry of this city as late as 16 years ago, in a very able article, read before the St. Louis Medical Society, called the attention of the profession to the wide range of usefulness in neurosis of this most important branch of modern therapeutics. When we take into consideration that neurosis in general is increasing to an alarming extent it is pertinent to ask the profession to wake up, shake away that apathy and critically investigate this vital condition. It is really surprising to me that this has not been done before now and that our regulars stood by watching with a don't care fashion the growth of osteopathy without making the slightest attempt to stem its tide and counteract its effect.

They get results and that is the secret. The practical question now arises: What can we do to remedy the damage we unwittingly inflicted upon ourselves?

The problem is not hard to solve. Direct your neurasthenics, dyspeptics, etc., to a proficient masseur or masseuse, one who is an adept in the Swedish art, with the understanding that either masseur or patient keep under your directions. Manifest to these patients marked interest, consideration and patience. Take notes of their improvements as frequently as necessary and you will enlist their confidence. They are tractable patients, but you must not lack tact yourself. If treated in this manner you will very seldom lose them.

The main point to bear in mind is that the etiology of neuroses in general is namely that of auto-intoxications. Elimination is the logical remedy, massage is the eliminator. Remember that an hour each alternate day, spent on a comfortable couch under the deft manipulation of an experienced masseur will store up more nerve energy and eliminate more toxic substances from a system clogged by sedentary habit and overeating than you can by means of all the drugs in the pharmacopeia. Do not understand me, however, to say that it is a panacea for all ailments, let me not be misunderstood—but in conjunction with careful diet, hygiene, tonics and out door exercise you will surely benefit your patients and retain their interest.

With the possible exception of walking, no other form of exercise need be indulged in. The hour spent in massage is a perfect rest under relaxation and is a sublime restoring tonic, it is a good all round investment. It is superior to osteopathy on all lines, and as a part of our therapeutics, deserves a better recognition by the general profession. A good list of reliable masseurs and masseuses should be kept on file in every physician's office. If all of our regular friends will handle these neurasthenics in the above described way, no fear need be entertained of any more cases going to osteopaths.

EDITORIAL.

THE ECONOMIC FACTOR IN DIAGNOSIS.

It is an admitted fact that the present age, if given any name descriptive of it, would be called the economic age. It is the age above all others that material advances have been made. Medicine, as a part of the civilization in which its activity is permitted to be exercised, can be looked upon as sharing this common feature. The isolation of medicine, so noticeable in previous periods, is no longer possible. For good or evil, medicine has taken its place in the currents of the times and must be viewed as a part of them. From its practical side, medicine deals with either a unit of society or with a potential unit of society. The social unit, when it is the subject of disease, may be looked upon as having a certain number of possibilities. It may, as a result of morbid processes, be so incapacitated as to become a social burden permanently stricken off the roll of active factors. It may be temporarily removed from the class of active units and returned again in its former state, or, again, it may be restored, weakened in its strength and less capable of withstanding the stress of active life. In any one of these possibilities the physician becomes a determining factor, and often upon him depends the possibility which later develops. The thorough understanding of the nature of the disablement is the first step toward its removal or betterment. This means, of course, diagnosis. It is therefore essential that the physician in any case is bound to take advantage of every facility which medicine affords to arrive, as soon as possible, at the correct diagnosis, because in certain diseases interference is successful or not depending upon the amount of time elapsing between the onset of the disease and the effort at removal. Cancer and tuberculosis may be mentioned as two striking examples of this contention. Both are probably in the beginning localized diseases and limited ones. A cure can be obtained in a large percentage of cases provided the process has not advanced much beyond the initial stage. In other words it is possible to replace the subjects of these two diseases in the class of active units from which they were taken. A man in active life represents a certain economic value to the state and to preserve this value in increasing ratio, if possible, must fall within the province of the physician as regarded from the civic side. It is no longer possible for a physician to regard his patient as his sole property to dispose of as he sees fit, nor to regard the diagnostic problem presented as his personal problem, to be solved by whim, prejudice and whatever ability he might be in possession of. He is

bound in this larger view to use all the methods which medicine offers for the understanding of his case because his case after all, is a factor in the economic side of the community. The surgeon's appeal for earlier diagnosis contains much truth though perhaps it may be admitted that his altruism is not more marked in this instance than that of the internist. Whatever objections to advances in other parts of medicine may be made there should be allowed none to progress in diagnosis.

The gist of this contention is simply that a patient should represent to the physician not only an individual who comes to him for relief, but likewise a unit in a social fabric for whose long continuance in activity he must share a certain responsibility. This view, somewhat socialistic perhaps, would tend to broaden a physician's outlook and make him feel that he is responsible not alone to the family and friends of the patient, but in a larger way, to the state for the care of a unit of activity which comes to him in the guise of a patient.

COMMENT.

REGENERATION IN MAN AND OTHER VERTEBRATES.

The regeneration after a loss of whole portions of an avertebrate and vertebrate organism has been a subject for much study and speculation. Some 150 years ago Spallanzani first devoted his attention to it. The number of observations has increased considerably up to date; besides in avertebrates we know of its existence in fishes, amphibia and reptilia and to a slight degree in birds, but it has never been observed in mammals. F. H. Morgan has made this phase of the question the starting point of an attempt to give a rational suggestion for an explanation. Why do mammals not regenerate lost members of their bodies? Why do other vertebrates that have ceased to grow, begin to regenerate with great rapidity when a part is removed? If the latter question is turned around and we ask why an animal stops growing after a certain period is reached, the problem appears accessible to solution. That the digestive capacity for food does not play a role, as was asserted formerly, is denied by experiments made to establish a relation between the amount of food and the rapidity of regeneration in animals deprived of certain members of their bodies. Starved and overfed animals regenerate in the same way. Morgan introduces the conception that regeneration is only one phase of the general phenomenon of growth. It is observed that regeneration differs in rate according to the different levels. If a fish's tail is cut off at the end the regeneration is as long in becoming established as it is when the whole tail and even a portion of the vertebral column is removed. The same obtains for the tails of salamanders, lizards, etc. In avertebrates, for instance the common earthworm, the removal of the posterior segments is made good much slower by regeneration than if half of the body or all of it up to the last segments of the anterior pole is cut off. It has been believed that these regulation processes are due to a vitalistic and dominant principle in living matter. This, of course, as Morgan emphasizes, is no explanation, but on the contrary a stop to further elucidation. Such an assumption, however, is not necessary and in this part of his discussion the author enlarges an idea for regeneration which pathology years ago used as a factor physically understandable and accessible to investigation, and in growth in general accounting for the stopping of growth at a certain point. We know that the cells of almost every tissue and organ when disturbed in their organic connections begin to proliferate and multiply and are restrained from overgrowth only by the restitution of the tissue to its original functional condition. If the disturbance is such that a rearrangement becomes im-

possible, the restraint does not occur and the proliferation goes on. Morgan expresses this condition thus: "It seems to me not improbable that the inhibition is caused by a definite response to a condition of internal pressure or tension of the cells on each other. When this condition is reached further growth comes to an end. When we alter this particular pressure by removing a part, growth begins again." The nature of this pressure cannot be explained at the present stage of our knowledge. Nevertheless it rids us of the assumption of a formative force. Indeed, he says "the formative force itself is nothing more, if my view is correct, than the response of the cells to the pressure relations of the neighboring cells. This response determines the cellular differentiation and the differentiation is determined by the mutual pressures of the cells upon each other." Although this is purely hypothetical we must, arrived at the limits of our knowledge, have provisional hypotheses in order to continue investigation.

The fact that mammals never show even an attempt at regeneration of lost parts is accounted for by the higher differentiation of their tissues and by the different rate of rapidity of regeneration of the single tissues forming the lost part which does not allow of the production of a normally constructed part. Morgan attributes great importance to the very low rate of regeneration of osseous tissue, which in mammals is the essential element in the regeneration of a normal member of the body. It is a peculiar, seemingly confirming fact that regeneration only occurs in stages of animal development in which the supportive elements are formed by cartilage that the same species loses this quality as soon as the adult stage is reached with osseous structures. The regenerative capacity of a tadpole is great, while that of a grown frog is seemingly absent. The hope of the author is that in the future it might be possible to influence the rate of regeneration of the different tissues in a way which will produce a uniform course of growth of all of them, thereby establishing a mutual pressure of the different tissues upon each other identical to the original one, thus leading to the formation of an identical part.

At the present time we have no means of judging to what degree a possibility exists or will exist to give a basis of facts to these hypotheses. The value of Morgan's discussion lies in the emphasis he lays on the essential dependence of one cell upon the other by their mutual influences without which a regularity of formation does not exist. He does not enter into the necessary consequence following from this relation, a consequence, beginning to be felt more and more in biologic research, that finally the complex organism is not built up by cells, but becomes for physical and chemical problems divided into compartments, cells, subserving single needs of the whole. The individuality of an or-

ganism cannot be explained in any other way; the formation of an organism from a single cell proves it. We can now hardly go beyond the assumption of a formative force as it is called, that is, a power directing the growth and function of the single cells of the organism. As long as we consider cells the units which in their complex arrangement form an individual organism, an understanding is possible only by a force extraneous to the cells and nevertheless directing them. This, from the point of view we call scientific, is out of the question. We will learn to interpret it scientifically when we learn to call cells nothing but little portions of a complex machinery inserted as the working of the machinery calls for them. Only in this way will be possible what we call an understanding of the nature of life and of the pathologic processes occurring during its existence. For this, if we can call it evidence, the modern view of the development of series, or organisms is an evidence; the changes obtaining do not concern the cells but the whole. The writer of this comment knows only too well the futility of individual opinions, but these opinions are always and necessarily the consequence of the uniform trend of work done at a given period. And there is no doubt that this opinion is at the bottom of the more and more emphatic assertion of the impossibility of explaining the nature of life by the agglomeration and combined action of individual cells.

MEDICAL AND SURGICAL PROGRESS.

INTERNAL MEDICINE.

IN CHARGE OF

JESSE S. MYER, M. D.

SCORBUTUS.—Senator (*Berlin. klin. Wochenschr.*, No. 17, 1906).—Although scurvy is generally classed as a disease of the blood, but few examinations of the blood and of the blood making organs by the new method of Ehrlich have been reported. The author recites a case in detail with the blood findings and the postmortem findings.

The blood showed a rapid decrease of the erythrocytes down to one-sixth of the normal number, reaching 750,000. There was an equally pronounced decrease of the hemoglobin down to 11 per cent. There was also a gradual leucocytosis, with diminution of the lymphocytes, a poikilocytosis, polychromatic degeneration of the erythrocytes, and normoblasts. These findings correspond practically to those noted in a single post-hemorrhagic anemia with a sub-acute or chronic course. In addition to the above a few myelocytes and myeloblasts were found.

The post mortem also revealed just such changes as might occur in severe hemorrhage and a high degree of anemia, without any specific characteristics.

In this case the anemia was due to the existing hemorrhage which characterizes the disease. The observation of the case throws no light upon the true nature of the disease. It is not known whether the disease is due to a primary affection of the blood, or of the blood vessels.

THE DIAGNOSTIC VALUE OF THE LEUCOCYTE FORMULA IN PERTUSSIS.—Churchill (*Jl. Am. Med. Assn.*, May, 1906) lays much stress upon the early diagnosis of pertussis, both because of the serious character of the disease and because of its dissemination in the early stages. He collected 100 cases of whooping cough in which differential blood counts had been made, with the view of determining the diagnostic value of such a count. He arrives at the conclusion that a general leucocytosis is present in almost all cases of whooping cough; that a lymphocytosis is found in about 85 per cent. of cases at some time during the course of the disease; that a lymphocytosis is found even more certainly during the early or catarrhal stage, over 90 per cent. showing the phenomenon at this time. The presence, therefore, of a lymphocytosis in a child with a hard, persistent cough is a factor of great diagnostic value. It is also of prophylactic importance inasmuch as it can be used to prevent the spread of the disease by leading to the prompt isolation of the patient. The age of the child must be taken into consideration in estimating the importance of the leucocyte count.

A CASE OF CARDIAC NEUROSIS AND ARTERIOSCLEROSIS FOLLOWING TRAUMA.—Goldscheider (*Berlin. klin. Wochenschr.*, April 23, 1906) reports the case of a man, aged 26, who, following a severe injury of the head, developed a marked hypertrophy of the heart and arteriosclerosis. He had been perfectly well up to the time of the injury and had never presented any evidence of such a disturbance. The author considers this proof positive of the theory that such conditions may follow trauma.

TUBERCULOSIS OF THE OESOPHAGUS.—Kummel (*Munch. Med. Woch.*, March 6, 1906,) reports a case of tuberculosis in which the autopsy revealed a most remarkable involvement of the oesophagus and yet comparatively few clinical symptoms pointed to its existence. He explains the rarity of oesophagical infection in tuberculosis by the rapidity with which sputum is swallowed and also by the thick pavement epithelium which is not very susceptible to tubercular infections. In cases in which the infections occur we are justified in assuming that there must have been previous injury to the mucous membrane which admitted infection. Cases are referred to, for instance, in which the oesophagus became involved on account of previously existing disease of the oesophagus, such as carcinoma.

OBSERVATIONS CONCERNING DIABETES AND GLYCOSURIA.—Salus (*Centralblatt f. Grenzgebiete Med. u. Chir.*, No. 5, 1906,) presents an exceedingly interesting article concerning diabetes and glycosuria and their relations to pregnancy, heredity, narcosis, etc. This article is accompanied by literature references which greatly enhance its value.

PATHOLOGY AND BACTERIOLOGY.

IN CHARGE OF

CARL FISCH, M. D.

THE CHANGE OF THE NEUTROPHILOUS BLOOD PICTURE, After Arneth. —E. Pollitzer (*Deutsche Med. Woch.*, 1906, No. 12.)—Pollitzer has made exhaustive control investigations regarding the phantastic doctrine promulgated by Arneth about the change of the polynuclear leucocytes especially in regard to their nuclei under pathologic conditions. Pollitzer shows that Arneth's assertions are based on an insufficient staining method. His opinion was that for instance in infectious diseases the "number" of nuclei of these cells was in a much higher percentage than in normal blood only one or two. The method used by him does not allow of a correct interpretation and Pollitzer with a more exact procedure has shown that such a change does not exist. This flaw in Arneth's conclusions has been felt long since; that it has not been especially emphasized is due to the fact that Arneth's theory so far only exists in his numerous publications and that with two or three exceptions nobody has deemed it worth his time to follow him with the hope that he could

accept his views. To base such far reaching speculations as Arneth does, for the course and nature of pathologic processes on the size and greater or lesser nuclear lobulation of the polynuclear leucocytes, is an undertaking that a *priori* is not promising.

THE SIGNIFICANCE OF STREPTOCOCCI IN MILK.—P. G. Heinemann (*The Jl. of Infect. Dis.*, vol. 3, No. 2, April, 1906).—If Heinemann's observations are confirmed by control-observations they will bring a small revolution in our methods of milk investigation. His general conclusions are, shortly, as follows: The ordinary bacteria producing lactic acid fermentation are bacillus aerogenes var. lacticus and streptococcus lacticus. The latter agrees in morphologic, cultural and coagulative properties with pathogenic, fecal and sewage streptococci. It can be found in cow feces, on the external surface of cows and in milk of all stages of subsequent handling. Souring of milk is caused by the co-operation of both groups of bacteria and is perhaps, favored by peptonized bacteria always present in market milk. Gas is produced by the aerogenes but its development is checked by the growth of the streptococcus. Both of them produce acid; the aerogenes is more sensitive to a high acidity and is regularly overgrown by the streptococcus. Sterile milk can be made to produce acid fermentation by inoculation with streptococcus. The constant presence of streptococcus therefore in market milk and milk collected with special precautions will be a stimulus for further investigation in sanitary work.

THE TOXINS AND ANTITOXINS OF POISONOUS MUSHROOMS (*Amanita Phalloides*).—W. W. Ford (*The Jl. of Inf. Dis.* Vol. 3, No. 2, April 6, 1906).—A review of the careful investigations of Ford, that have led to exceedingly interesting conclusions must be omitted here. The conclusions formulated by the author are as follows: It can be stated that the poisons of *amanita phalloides* (a fungus in appearance similar to the edible mushroom) of which the phallin of Kobert is the hemolytic constituent, are of the nature of toxins in that they act on the animal body after a definite latent period, produce lesions with all the characteristics of bacterial intoxication in general, and produce immunity in susceptible animals by injection of non-lethal doses. Such animals will withstand a considerable multiplicity of fatal doses and their serum possesses antihemolytic and anti-toxic qualities so that a serum can be obtained neutralizing in the amount of 1 cc 10 fatal doses of the toxin. The future will have to show whether serum of higher potency can be produced. For an attempt to produce such sera the justification lies in the comparatively high number of fatal accidents resulting from the consumption of these fungi. The statistics compiled in different countries count many hundreds of deaths from this form of poisoning. The time in which the intoxication leads to the fatal end is in adults 6 to 8 days and children 3 to 4 days, so that the administration of serum within this time appears feasible, especially since in all cases the diagnosis is made very early after the symptoms appear from the history of the patient.

EXPERIMENTAL INVESTIGATIONS ABOUT THE ANTI-BODIES AGAINST RETINAL TISSUES.—C. Hess and P. Roemer (*Archiv. f. Augenheilk.*, vol. 54, 1906).—It is impossible to give in detail the results of the investigations made by Hess and Roemer on the specific differences of the immunity reactions of the various elements composing the retina. As far as pathologic conditions are concerned the following interesting results may be shortly sketched.

The filtrates of pigmented epithelium and of retina of cattle, hog and man inhibit the hemolysis of the normal serum of a certain species on otherwise susceptible species of blood corpuscles. The antihemolysin is specific for the species. Injection of the fragments of a fresh retina (preferably that of cattle) into guinea pigs results in the formation of lysins for the rodlets and of the agglutinins. For rodlets of other species the action of the lysin is less marked so that it must be concluded that in the different species of mammals different receptors are present in the elements serving perception. Lysin reaction and agglutinin reaction could be demonstrated here also as independent of each other. The sera of cattle, of goose and of chicken agglutinate the rodlets of all animals examined by the authors, even those of the same species. In the serum of cows, lysins for the rodlets of cattle could be demonstrated by the addition of complement taken from guinea pigs. It was possible to make antilyns and antiagglutinins, and it was highly probable that the substances normally present and those produced by immunization were identical. The interest of the observation lies in the demonstration of the specific difference in qualities, demonstrable by immunity reaction, in cellular elements so closely united in an organ like the eye.

ABOUT THE INFLUENCE OF NEUTRAL SALTS ON STAINING CAPACITY AND FIXATION OF NERVOUS TISSUE.—E. Mayr (*Hofmeist. Beitr.*, vol. 7, Heft 12, page 548-674).—Mayr was stimulated by an observation of Bethe that nerve fibers kept for twenty-four hours in so-called physiologic salt solution underwent a pronounced dissolution, to study more closely the influence of salts on the histologic structure. The results he obtained may be made accessible to interpretation by the assumption that the tissues consist of an inhomogeneous system in the sense of physical chemistry, that it consists of various and multiple phases of solid, colloid and fluid state that are present in a state of equilibrium. The latter is changed by the addition of a salt solution, a change that after some time is restored to the normal condition. This changed condition is fixed by the addition of alcohol. The tissue constituents behave toward salts like albumin or gluten solutions; they differ from each other according to their chemical character. The primary staining capacity runs parallel to the behavior toward salt solutions. In this respect the difference between fibers of the spinal cord and the peripheral fibers is very interesting as is the influence that blood has on the integrity of the histologic structure of the spinal cord. There is no doubt that many suggestions can be made from this observation as to technical points in histology.

CONTRIBUTIONS TO THE COAGULATION OF BLOOD WITH REGARD TO THE ACTION OF HIRUDIN.—A. Schittenheim and R. Bodong (*Archiv. f. Ex-*

perim. Path., vol. 54, 1906, pages 217-244).—The authors used as material the blood of horses preparing from it fibrinogen and blood platelets. For tissue juices the extracts of liver and kidney of the horse were used, and in some experiments of human, canine and bovine blood or of the organs of the dog or of the calf. The results obtained have the effect of generally confirming the ideas of Moravitz, but with one deviation, namely, that concerning the substances present in platelets and in their action on each other producing coagulation. Moravitz only found in the platelets the simultaneous presence of thrombogen and thrombokinase. The authors could show that there was present in the blood platelets, also a substance that was coagulable, in other words a substance that represented a stage in the formation of fibrin. Blood platelets can coagulate spontaneously so that, according to the authors' opinions, these formations contain all elements necessary for coagulation. They were unable to show the capacity of tissue-extracts to produce coagulation by components that are necessary for a typical coagulation. As to the effect of the addition of hirudin to blood it has been asserted that it was brought about by the action it exerted on the thrombogen; to speak with Ehrlich that an antithrombin and an antikinase played the part; Schittenheim and Bodong found that neither the thrombogen nor the kinase influence directly the hirudin but that there must be present in the blood plasma a substance capable of neutralizing the excess of hirudin. This substance cannot be thrombogen.

THE VISCOSITY OF BLOOD.—D. Heubner (*Archiv. f. Experim. Path.*, vol. 53, pages 280-301).—Heubner's paper will set to sober consideration the recent enthusiasm on the valuation of the modern determinations of the viscosity of the blood. The author in the beginning discusses the validity of Poiseuille's law on the flowing of fluids that either do or do not wet the wall of the vessels containing them. He demonstrates that the stream of chloroform as compared with that of water and alcohol is the greater as the capillary tube is more narrow or longer. For water and for alcohol there is an inhibiting influence which does not obtain to the same degree for chloroform. A specific reaction between the surface of the glass and the fluid, not the same in all of them, must exist. This shows that the law mentioned above does not hold in all cases.

It has been impossible to demonstrate that the circulating blood in vessels follows the same law as the water in glass capillaries. The relations between viscosity and circulation are not yet established; measurements refer only to the inner friction of the blood itself not to the external friction on the walls of the vessels. However, both of them act in combination at all times; therefore conclusions as to a greater or less amount of work done by the heart made from the figures found for the viscosity in rapid or slow circulation, are not justified. In regard to the relations between viscosity and assimilation the author makes valuable suggestions but they cannot be detailed here. It may be mentioned that blood made non-coagulable by the addition of hirudin shows the same coefficient of viscosity as the plasma of the same blood without hirudin.

DIAGNOSIS.

IN CHARGE OF

ALBERT E. TAUSSIG, M. D.

ENTEROSPASM SIMULATING APPENDICITIS.—H. P. Hawkins (*Brit. Med. J'l*, 1906, No. 2)—While advocating prompt operation in most cases of appendicitis, the writer believes nevertheless, that at present the appendix is often removed unnecessarily. There is a tendency to look upon every pain in the ileocecal region as appendicitis and to operate. Often, the attacks of pain remain uninfluenced by the operation for the reason that they were not produced in the region of the appendix at all. Intestinal neuroses, simulating appendicitis, occur, though rarely, and mucous colitis is not infrequently mistaken for the same disease. The greatest of these sources of error, however, is enterospasm. This condition may affect any portion of the gut but occurs most often in the coecal region and in the descending colon. It is found most frequently in neurasthenics and may present a very various picture. It may produce definite attacks of acute pain, but more often appears as a dull, more or less vague, pain, sometimes lasting for months and usually referred to the left or right iliac fossa. In the latter case it is apt to lead to a false diagnosis of chronic appendicitis; in the former to one of disease of the sigmoid flexure. The writer reports a number of such cases, wrongly diagnosed, in some of which the spastic stenoses of the gut could be observed during the operation.

THE DIAGNOSIS OF PELVIC APPENDICITIS.—Armstrong (*Brit. Med. J'l*, 1906, No. 2)—In some cases of appendicitis the exudate lies immediately above or below the entrance to the pelvis, so that it is chiefly the pelvic peritoneum that is involved. Such cases are often overlooked since McBurney's point is not tender, nor can considerable pain be elicited by pressure anywhere upon the abdomen. Only the bimanual examination makes the diagnosis possible and the latter should therefore never be neglected in obscure cases of abdominal pain. The mortality of these cases is high since, on account of the difficulty of diagnosis, they usually come to operation too late.

A HITHERTO UNOBSERVED SOURCE OF ALIMENTARY PENTOSURIA.—v. Jaksch (*Zentralbl. f. inn. Med.*, 1906, No. 6).—In connection with the report of a case of alimentary pentosuria, v. Jaksch calls attention to a new source of error in the ordinary tests for sugar in the urine. The unfermented fruit juices which are often drunk in large quantities, both by the sick and well, may contain considerable amounts of pentose. After the ingestion of such juices an alimentary pentosuria will be produced, and if large quantities have been consumed (e. g. 1 to 1½ liters of apple juice) the pentosuria may last for 24 hours. Such a urine will give a positive reaction both with Trommer's (Fehling's) and with Nylander's test and in order to distinguish this perfectly normal condition from one of true glycosuria, it is necessary to do the fermentation test. As is well

known, no fermentation will take place when the reducing power of the urine is due to the presence merely of pentoses. This possible source of error, it would seem, should especially be kept in mind in life insurance examination.

A VERY DELICATE TEST FOR BILE PIGMENT.—Krokiewicz (*Muench. med. Wochenschr.*, 1906, No. 11).—Three reagents are needed for the performance of this test:

1. A one per cent. aqueous solution of sulphanilic acid.
2. A one per cent. aqueous solution of sodium nitrate.
3. Pure concentrated hydrochloric acid.

The first two reagents should be kept in dark colored glass bottles. The test is performed as follows:

Into a test-tube pour equal parts of the first two reagents, shake well and pour away all but a few drops, so that 0.5 ccm. at most remain behind. Add a similar quantity (0.5 ccm.) of the urine, or other fluid, to be examined, and mix well by shaking. The fluid takes on a ruby red color which, upon the addition of 1 or 2 drops of Hcl. and dilution of the mixture with distilled water, becomes amethyst-violet in color. If the urine or other fluid is very rich in bile it should be diluted with several volumes of distilled water (up to 10) before testing. The amethyst color is very distinct and relatively permanent, but has no distinguishing characteristics when examined spectroscopically. The reaction is positive only in the presence of bilirubin or of one of its less oxidized derivatives. It is not produced by any of the drugs that are excreted in the urine, is not affected by the presence of indican and has no connection with the factors responsible for Ehrlich's diazo-reaction. The writer claims that it is more than twice as sensitive as Gmelin's test or that with iodine and is surpassed only by Huppert's test. The latter, however, is much more troublesome and requires 100 ccm. of urine, whereas the above test is simple and can be performed with a very few drops. The writer recommends it not only for urine but especially for other fluids, such as stomach contents.

A NEW METHOD OF STAINING BLOOD SPREADS ACCORDING TO ROMANOWSKY.—Richard May (*Muench. med. Wochenschr.*, 1906, No. 8).—The blood stains now most in use, those of Wright, Leischmann, Giemsa, etc., depend upon the simultaneous action of methylen blue, methylen azure and eosin. The writer has modified these stains as follows: The blood spreads are first stained with a $\frac{1}{4}$ per cent. solution eosinate of methylen blue in methyl alcohol (practically Jenner's stain) and then differentiated for one minute in distilled water. Thereupon, without being dried, they are covered with one drop of $\frac{1}{2}$ per cent. aqueous solution of methylen azul. The latter first decolorizes the blue nuclei of the leucocytes and then stains them with its peculiar reddish tint. The entire process can be observed under the microscope and takes 2 to 4 minutes. The spreads are then washed, dried and mounted. This method is said to give uniformly clear and brilliant stains and to be useful not only in blood work, but also for staining micro-organisms, in particular the *spirochæte pallida*.

DETERMINATION OF THE LOWER BORDER OF THE STOMACH.—Schuele (*Arch. f. Verdauungskr.*, Bd. IX, No. 6).—The only reliable method of determining the gastric outlines is by means of radioscopy. Of the clinical methods for determining the position of the greater curvature, none are trustworthy. The least faulty seems to be percussion with the patient standing erect. Inflation of the stomach is apt to lead to over-distension and so to the false diagnosis of gastric dilatation.

THERAPEUTICS.

IN CHARGE OF

WALTER BAUMGARTEN, M. D.

THE "HOME SANATORIUM" TREATMENT OF CONSUMPTION.—Pratt (*Johns Hopkins Bull.*, May, 1906) reports the methods and the results of the "Emanuel Church Tuberculosis Class," which was organized in July, 1905. He takes the attitude expressed by Dr. Osler, that "the vast majority of all tuberculous patients must be treated in their homes." The chief difficulty in the treatment of these patients is to secure the necessary discipline, and herein lies the weakness and the lack of success by the general practitioner in this class of cases. Such patients must be convinced of the necessity of the rules of life prescribed, then taught in detail how these are to be carried out, and, most important of all, carefully watched from day to day until the prescribed measures are accurately and unswervingly followed out. It means the education of not only the patient but of the whole family, and this task devolves upon the physician.

The care of a tuberculosis patient consists in attention to minute detail, and success depends upon an accurate adaptation of principles to the individual case. "It should never be forgotten that it is the individual, not the disease, that needs treatment." The reason that the results of dispensary treatment have been wholly unsatisfactory is due to the lack of careful supervision, and the lack of the strict discipline maintained in sanatoria. "The difference between our (Pratt's) method and that of the tuberculosis dispensary is essentially this: that the tuberculosis dispensary gives a relatively small amount of care to a large number of patients, while we give a large amount of care to a small number of patients." This has been Pratt's effort. He has been supported financially by Emmanuel Church (Boston) and since July 1, 1905, has taken care of fifteen cases of tuberculosis at an expense of \$513.00.

The "class" should be small in number, not more than 25, so that the physician may know the intimate conditions of his patients' circumstances and surroundings. No one is accepted until the clinical diagnosis has been confirmed by sputum examination or tuberculin test. Cases are received in all stages. The applicant for treatment must promise to give up all work, lead the out-of-door life and obey all rules. It is impressed upon the patient—"that the most profitable work for a sick man is to get well." A complete clinical history is taken and a physical examination recorded.

Once a month the lungs and sputum are examined. The patient is visited in his home and it is determined whether it will be possible to carry out the open air treatment at that place. If there is no roof, balcony, piazza, or yard available, the family must move to a tenement where one of these is to be had. The exact financial status of the family is learned and instruction is given in the prevention of the spread of the disease to other members of the family. The patient is at first visited daily until it is certain that the rules are being faithfully and intelligently observed. The patient is placed in a protected balcony, or in a 7x7 foot wall tent on the roof or ground. Here he remains except for food, exercise (when permitted), and bath. The greater part of the day is spent in a recumbent or semi-recumbent position in a reclining chair which is furnished each patient. The food consists chiefly of milk, bread, butter, fruit and oil. Two or three quarts of milk are consumed by the patient. No exercise is permitted for several weeks. The walking is begun, five minutes morning and afternoon, and gradually more, the duration being controlled by the effect upon the body temperature. The walking is accurately measured by the watch. An important feature in enforcing discipline, and encouraging the patient to maintain it, is the use of an individual record book in which all the detailed steps of the day's doings (bath, food, rest, exercise, pulse, temperature, quality of sputum) are entered. Pratt has been materially assisted in his supervision by a nurse who has given her entire time.

SURGERY.

IN CHARGE OF

WILLARD BARTLETT, M. D.

HYPERNEPHROMA; CARCINOMA; SARCOMA.—Neuhauser (*Archiv. für Klin. Chir.*, Bd. 79, heft 2).—After reciting the histories of nine of these somewhat unusual cases the author gives the result of rather extensive study on this subject. He comes to the conclusion that both of these suprarenal tumors are the result of an embryonic enclosure in the sense which Cohnheim used the term, the result of portions of the suprarenal gland being included in the kidney substance. This may not be the only cause of such tumors, but it must be regarded as the first one of importance. We have on the one hand cancer, or on the other sarcoma, just as it happens that the new growth springs from the epithelium on the one hand, or from the structural connective tissue on the other, there being, of course, both of these elements in the displaced mass.

URETERO-CYSTOSTOMY.—Pons (*Revue de Chir.*, No. 3, 1906).—In the case under discussion, an abdominal hysterectomy had been made for cancer of the uterus, when it was discovered, before closing up, that extensive involvement of the right broad ligament made it necessary to widely excise the same, including a mass, which completely surrounded the ureter on the same side. After this had been done, an incision was

made in the bladder, the free end of the ureter carried down the same, and sewn in place with catgut. The external wound was sewn up tight, and healed without further incident. The patient was able to leave the hospital 18 days later, after a cystoscopic examination had demonstrated the fact that urine was pouring into the bladder through the new opening, as well as through the old one on the opposite side.

A VISIT TO THE MAYOS AT ROCHESTER, MINN.—Bernays (*New York Medical Journal*, April 21, 1906).—This article describes graphically, and most accurately, what can be learned in a week spent at the Mayos' clinic. By perusal of it one who has not been there can get a better idea in a short time of what to expect from such a visit that can be obtained in any other manner known to the reviewer.

CLEFT PALATE.—Dollinger (*Zent fuer. Chir.*, No. 13, 1906).—A most valuable hint is given to facilitate the suture of cleft palate, after the edges have been freshened and the lateral incision for the relief of tension made as contemplated in the Langenbeck operation. The author uses two needles for each suture, introducing them from the mouth side, and tying the two ends within the nose before tying the two ends within the cavity of the mouth, thus greatly facilitating the most difficult step in the operation. After this a strand of thread is hooked over the loops within the nose and brought out through one of the nostrils to facilitate removal of the sutures. A good drawing makes an understanding of this most valuable suggestion easier.

TREATMENT OF THE BITES OF COPPERHEAD SNAKES BY LOCAL FREEZING, COMBINED WITH A FREQUENT APPLICATION OF A POTASSIUM PERMANGANATE SOLUTION.—Crun (*Jour. Amer. Med. Ass'n.*, May 12, 1906).—There is something fascinating about snakes for most people, and the many who read every article on this subject that they can get their hands on, will, no doubt, take delight in the article under consideration, since it deals with a venomous serpent of our own country, as well as the means of combating the deadly effects of its bite. The author has had experience with an average of two cases per year since he has been in practice, and has finally found a way of treating the same successfully. He freezes the bitten area and then makes two parallel incisions, one through each of the tooth marks, and soaks the extremity in a strong solution of the potassium permanganate. After this, a wet pack of the same is used, the fluid being frequently renewed. He has had eight of these cases and thinks that the freezing alone does some good. He reports three cases. The author seems to think that very young snakes are especially poisonous the venom differing from that of older specimens, and it does not seem that large snakes are more to be dreaded than their smaller relatives of the same species.

APPENDICULAR FEMORAL HERNIA WITH NOTES OF ONE HUNDRED CASES.—Wood (*Annals of Surgery*, May, 1906).—The author has had two of these rare cases, and together with ninety-eight from the literature, he gives a resume of one hundred, in which the appendix alone was

found in the sac of the femoral hernia. There has, no doubt, been many others in which the appendix, plus other portions of the intestine, were thus situated, but not considered in this report. The appendix is found once in about fifty-three cases of hernia of various sorts, this knowledge being derived from a study of over three thousand cases. It is interesting to note that cæcum and appendix have been found in far the greater number of cases, in young subjects. However, when the appendix alone has thus been discovered, it has usually been in elderly subjects. This interesting and valuable article contains an immense amount of information, which can scarcely be treated in a review, hence, the same will be appreciated in the original by those who are especially interested in this subject.

ORTHOPEDICS.

IN CHARGE OF

NATHANIEL ALLISON, M. D.

AN ANALYSIS OF 152 CASES OF HALLUX VALGUS IN 77 PATIENTS, WITH REPORT UPON THE OPERATION FOR ITS RELIEF.—Wilson (*Amer. Jour. Orth. Surg.*, Jan., 1906).—Any long continued maintenance of position of the big toe that prevents normal function and posture will produce hallux valgus. The shoe that tends to produce deformity of the great toe is the shoe which is too short, and which has a high heel or a pointed toe. Also pointed stockings, or those which are not sufficiently long, will produce this deformity. The greatest factor of all, however, is the everted, pronated position of the foot in standing and walking. In an examination of 397 women, very few of whom were below the age of 50 years, every individual showed more or less divergence of the great toe from normal position and function. Three hundred and twenty of them presented no evidence of pain, or marked deformity, or faulty use of the feet. Seventy-seven were found to have more or less marked degrees of deformity. Clinical inspection showed apparent exostoses in 141 feet, while in 11 there were none. Observation of the feet in standing and walking showed pronation in 121 feet, only 33 approaching normal in this respect. In 132 feet the position in walking was markedly everted. In 14 cases there was no overlapping of toes. In 16 cases there was overlapping by the big toe. In 124 cases there was overlapping by the smaller toes. In 36 feet there was destruction of the arch, a smaller percentage than would be expected in patients where there is eversion and pronation of the feet associated with hallux valgus.

The author recommends excision of the internal lateral aspect of the distal extremity of the metatarsal bone in all cases where bone operations are desirable or necessary. He reports four successful cases treated in this manner. Particularly is this procedure applicable to those cases where there are exostoses, or where the protrusion of the distal end of the metatarsal bone appears like an exostosis.

EPIPHYSEAL SEPARATION OF THE GREAT TROCHANTER, WITH REPORT OF CASES.—Thienhaus (*Annals of Surg.*, May, 1906).—Poland in 1898 collected the literature on this subject, and was able to discover only twelve cases of epiphyseal separation of the great trochanter, up to that date. The author, in a thorough search of the literature has been unable to find another case cited. His case is that of a school girl, who received direct violence to the region of her great trochanter, through an accidental fall. The case was at first considered contusion of the hip. After four weeks she was unable to stand without extreme pain at the region of the great trochanter, and was always inclined to rotate her leg inward, and to hold it in a slightly flexed position. A skiagram taken at this time revealed a partial separation of the great trochanter. A well padded plaster bandage was applied, with slight pressure, on the trochanter. At the end of six weeks, recovery was complete. Epiphyseal separation of the great trochanter usually occurs between the ages of seven and seventeen years. Clinically the cases are divided into two classes, those in which there is a complete separation of the epiphyses, including the periosteum and tendinous parts attached to the great trochanter, and those in which the trochanter is separated from the body and neck of the bone, but no tearing of the periosteum and tendinous parts has taken place. The author's case belongs to the second class. Diagnosis depends upon the age of the patient. The fact that pain is caused by pressure on the region of the trochanter, and inability of the patient to use the limb on account of pain extending down the thigh, while at the same time active and passive motion in the hip-joint is possible in all directions, suggests this diagnosis. The author calls attention to the fact that many of the reported cases died from suppuration taking place at the seat of the injury. Apposition of bandage, or by direct operative procedure, is advised as treatment.

TENDON OPERATION FOR FLAT-FOOT.—Gocht (*Zeit. fur. Orth. Chir.*, Band 14, Heft 3 & 4).—In flat-foot due to the changed position of the bones, especially the os calcis, there is usually a changed condition in the length of the tendons which cross the plantar arch. The tendo Achillis is shortened on its outer side, but lengthened on its inner side, on account of the inward rotation of the os calcis. The author reports a case of flat-foot, in which the usual methods employed for this condition gave no relief of symptoms. He then operated upon the tendo Achillis, making it longer, and inserting it further inwards on the os calcis. This procedure, coupled with the ordinary means of support, gave the patient relief.

CALF DEFORMITY IN CLUB-FOOT CASES.—Ryerson (*Amer. Jour. of Orth. Surg.*, Apr., 1906).—In examining a series of well treated congenital club-feet in young adults, the author makes the following observations: The feet are in excellent shape. Varus, equinus and even rotation of the astragalus, are sufficiently corrected. The lengthening of the tendo Achillis by repeated tenotomy and stretching, however, has allowed the bellies of the gastrocnemius and soleus to retract upward to such an extent that the calf is far above its normal position. Function is not disturbed by this, but the leg is thin and ugly, and in unilateral cases there is a noticeable asymmetry. The author attributes this condition to the

repeated cutting and retraction of the tendo Achillis practiced in these cases. In young infants the safest procedure is to divide the tendo Achillis, in order that the equinus may be corrected. If repeated cuttings are necessary, the author advises that the two tendinous heads of the gastrocnemius be divided near their origins on the femoral condyles. A small longitudinal incision at the inner edge of each hamstring group on a level with the middle of the condyles can be retracted, exposing these tendons. They should be isolated with a grooved director from the hamstring tendons, and from the external popliteal nerves. This operation does not afford as great a lengthening as does tenotomy of the tendo Achillis, because the soleus remains intact. The object of the procedure is to allow the main belly of the calf to remain as nearly as possible in normal position, where, by suitable exercise, it can be brought to a reasonable degree of development. The procedure is especially suitable to cases where previous Achillotomies have been performed, and where additional lengthening is deemed advisable.

OBSERVATION ON BROKEN NECKS.—Sayre (*Amer. Jour. of Orth. Surg.*, Apr., 1906).—All cases of broken neck are not necessarily fatal. Contrary to the popular impression, many get well. Fracture of the cervical spine does not necessarily involve laceration of the spinal cord, nor impairment of its function through pressure. The author reports 11 cases of broken neck. Of these, one died within a few hours after the injury. Two remained paralyzed in the lower extremities. One required support to his head at the time when last seen, but with this support had good control of his arms and legs. Two had perfect control of their muscles, except for slight stiffness in the neck and slight torticollis. Four had absolutely perfect results, and one is still under observation. Two of these cases resulted from diving into shallow water. One was from a blow on the back of the neck while in a swing; one from a fall from a hammock; one from a railroad accident; two from falls from trees; one from a runaway, and one from a fall downstairs. The result of the treatment of these cases led the author to believe that the best results are secured by immediate reduction of the fracture, and immobilization in plaster of Paris helmet and corset, applied if possible in suspension. Liquid plaster of Paris may be poured around the head and neck, while the patient is horizontal. In applying the bandage to the head, it is necessary to put a roller bandage in the patient's mouth, to allow room for opening the latter, or else there may not be enough room to allow the patient to eat. The X-ray is of the greatest assistance in the diagnosis of these cases. Support should be continued for at least three months. Attempts to allow patients to leave the bed with the neck unsupported earlier than this are apt to result in pressure paralysis. If complete readjustment of fragments can be secured, a perfect recovery without deformity or restriction of movement may be anticipated, unless the cord has been lacerated at the time of accident.

GENITO-URINARY SURGERY.

IN CHARGE OF

H. McC. JOHNSON, M. D.

THE ULTIMATE RESULTS OF KIDNEY FIXATION.—Carstens (*Jour. A. M. A.*, May 12, 1906.)—As a more or less movable kidney seldom occurs without other morbid conditions of the body, it is often very difficult to tell which of the various symptoms found in a case are produced by a movable kidney, and which are produced by the other pathologic conditions; so that the author has gone over his last thirty-two cases in which the kidney was apparently the only trouble and in which there were no other serious complications. He has written letters both to the patient and the family physician and here incorporates their replies. The author has observed that fixing and decapsulating a loose kidney relieves, and often cures, what nephritis may have developed in the organ. Nor does fixing a floating kidney mean that you get it into the exact position where it was and should be, but by fixing it high and as near to the original site as possible you prevent it pulling on or irritating other organs and the solar plexus of nerves; you prevent a kinking or twisting of the ureter. The author's mortality has been nil. He seems justified in concluding that movable kidney can be permanently fixed by proper technic, and that undoubtedly many disturbances of digestion are caused by movable kidneys, probably causing irritation of the sympathetic nervous system, perhaps of the solar plexus. Fixation of a loose kidney will relieve some digestive disturbances, and many of the nervous symptoms are relieved after a short time. Of course, a proper diagnosis must be made and a kidney found to be the cause of the trouble beyond any reasonable doubt. Nor can the fixation be expected to relieve symptoms caused by other organic diseases, such as gall stone, involvement of the appendix, constipation of the bowel, etc.

PRELIMINARY NOTE ON EPIDIDYMYTOMY FOR BLENORRHAGIC EPIDIDYMITIS; BASED ON SIXTY-FIVE CASES.—Bazet (*Am. Jour. Urology*, May, 1906).—The greatest and quickest relief in the treatment of blenorrahgic epididymitis is accomplished by epididymotomy. Like appendicitis this affection ought to be considered a surgical one, as in its evolution the morbid process is contained in a closed cavity and the septic secretions cannot be drained. In all cases we have pain, fever, swelling and a decided leucocytosis. Once epididymotomy is performed the good effects are immediate; pain stops, the fever falls, leucocytosis subsides, there are no relapses and the cure is rapid. The testicle is not primarily affected; if it does become involved, it is by propagation and to a small extent, the chief lesion being in the epididymis, which is increased in volume two to four times, and in its cavity we find nodules the size of a lentil or a pea, containing a puriform liquid; these nodules are abnormal dilatations of the epididymis, plugged with a mass of leucocytes imbedded in coagulated serum. The tubes appear permeable. The operation is performed as follows:

An incision about one inch in length is made through the ligamentum scrotalis over the globus minor and carried downward into the cavity of the epididymis. The nodules are exposed and punctured if pus is present, tension relieved and the walls of the epididymis stitched to the skin. The wound is packed with gauze, impregnated with 1-10 per cent. ichthyol and glycerine and the organ well supported. The wound heals in a week; the patient is able to be up in from 4 to 7 days. The gonococcus was found present in one-third of the cases. There has never been any atrophy, hernia, necrosis of the testicle nor any mortality.

PATHOLOGY OF TUBERCULOSIS OF THE KIDNEY.—Whitacre (*Cleveland Med. Jour.*, April, 1906).—The following points are dwelt upon: (1) Primary tuberculosis in the kidney is a well demonstrated fact. (2) The infection of the kidney occurs through the blood. (3) Genital and kidney tuberculosis may occur simultaneously and consecutively from hematogenous infection, but ascending infection is not an important factor. (4) The lesion is unilateral in a sufficient number of cases to give us our first important finger-board to treatment. (5) The opposite kidney remains free from tuberculous infection for a long time. (6) The clinical course is toward progressive extension to other parts of the kidney and the body.

URETERAL CALCULUS.—Deaver (*Ann. Surg.*, May, 1906).—Since the accurate methods of making a diagnosis in urinary surgery have been in vogue, the frequency with which urinary calculi are met with, has become very widely appreciated. They are prone to be arrested at three points in their course; two inches from the pelvis of the kidney, as the ureter bends forward over the psoas muscle; at the brim of the pelvis, where it dips down across the bifurcation of the common iliac artery; and close to the vesical orifice of the ureter. The point that chiefly concerns us is to determine at what point of the ureter the stone has lodged, and while the author regards the X-ray as of much value in locating the stones, he must conclude that it is the rule of surgery in doubtful cases to first explore the kidney through the loin and to pass a sound down the ureter before concluding the operation. The two most valuable aids to diagnosis are tenderness at the site of impaction and information gained by a technically perfect skiagraph. A skiagraph to be of value in these cases must throw a shadow of tissues less dense than the least dense calculus, and it is necessary to see the shadows of the psoas muscle to make sure that no calculus is present. It seems to the author that the dangers which may ensue from neglect of ureteral calculus are greater than those which attend its removal by operation even though the calculi produce no symptoms. The extra-peritoneal route is preferred. Details of five interesting cases are given.

A SIMPLE DEVICE FOR IRRIGATION OF THE BLADDER.—Ehrenfest (*Jour. A. M. A.*, May 21, 1906).—By means of air pressure, fluid is forced out of a bottle exactly as in Fowler's bottle used for hypodermoclysis. The fluid is conveyed through a rubber tube to the bladder. By the interpolation of the three-way stop cock the solution can be alternately injected into

and removed from the bladder by corresponding turning of the handles of the stopcock. The advantage of the instrument consists in that the whole apparatus can be thoroughly sterilized by boiling. The amount of fluid injected into the bladder can be easily determined at any point. The bladder may be repeatedly emptied and irrigated without getting any air whatever into it.

URETHROSCOPY.—Mark (*Am. Jour. Urology*, May, 1906.)—In speaking of urethroscopy in general and the advantages to be gained therefrom diagnostically and therapeutically, the author considers the air-dilating urethroscope of great advantage over the non-dilating instrument.

With this instrument the folds of the urethra can be obliterated without producing traumatism and the resulting hemorrhage in the posterior urethra especially, which interferes with the view. Again a more extensive mucous surface is brought into view and points in a considerable area may be contrasted. A minimum amount of manipulation is necessary, and if the urethroscope is brought beyond a point to which it is desirable to return to, the air dilates the urethra beyond the distal extremity of the tube, which may then be pushed back without difficulty or discomfort.

GYNECOLOGY AND OBSTETRICS.

IN CHARGE OF

HUGO EHRENFEST, M. D.

DEATH FROM UTERINE FIBROMYOMATA.—Pellanda (*These de Lyon. Rev. Jour. of Obst. of Brit. Emp.*, April, 1906.)—From a study of 171 cases of death directly caused by uterine fibroids the writer arrives at conclusions which are quite different from the views almost generally held by American and a large number of German gynecologists. He arranges the causes of death as follows: (1) *Cachexia* in 5.2 per cent. This state is brought about by such conditions as compression of the abdominal viscera, continuous hemorrhage, slow infection, cardiac and renal lesions, etc. (2) *Hemorrhage* in 6.4 per cent. It is very exceptional that a patient succumbs exclusively to the effects of an excessive loss of blood. (3) *Infection* in 49.5 per cent. It is the most common cause of death and in the majority of cases appears to depend on association with labor and abortion. (4) *Compression of abdominal and pelvic viscera* in 25.8 per cent. (5) *Thrombosis* of the pelvic venous sinuses, pulmonary embolism, cardiac lesions and sudden syncope in 11 per cent. There were furthermore three cases of torsion of a pedunculated subserous fibroid.

The author thinks his study of fatal cases shows that death directly due to fibroids is rare. More patients die from post-operative complications than die from the tumor itself. In his opinion the operative mortality is between five and ten per cent, *i. e.*, too high to justify the advice to extirpate every fibroid on diagnosis. "The surgeon is more dangerous than the tumor." The operation should be reserved for those cases with

symptoms immediately or prospectively dangerous, for those with tumors increasing after the menopause, and for those where the excessive development of the tumor or the exaggeration of the symptoms render life unbearable though not placing it directly in peril.

RUPTURE OF THE VAGINAL FORNIX DURING LABOR.—Saks (*Zentralbl. f. Gyn.*, 1906, No. 17.)—Complete rupture of the vaginal fornix during labor (kolpo-porrhexis) is a not very common occurrence. Hugenberger, in 1875, was the first to recognize the true nature of this serious injury and to differentiate it from uterine rupture. In 1891 Szcrepkin was able to collect 80 reports of kolpo-porrhexis and in 1905 Kaufmann added 82 new cases.

The case recorded by Saks is unique in that this rupture occurred twice in the same patient during two succeeding confinements. After the first labor a tear was found reaching from the left through the posterior into the right fornix. The hand could easily be introduced into the abdominal cavity. Three years later at full term the child is extracted after version has been performed on account of alarming symptoms which suggest a uterine rupture. A laceration is found completely separating the uterus from the left and posterior vaginal fornix. An iodoform-gauze strip is introduced. Patient recovers slowly.

PAINLESS LABOR.—Bruno Wolff (*Arch. f. Gyn.*, vol. 78, H. 2.)—It is a well known fact that women who are suffering from tabes or a transverse myelitis, will pass through an absolutely painless labor. Olshausen first called attention to the fact that a labor, as a rule, is less painful if the cervix is soft and succulent, and more painful if it is hard and rigid. He explains by this fact the observation that the uterine contractions usually cause comparatively little pain in cases of placenta previa centralis, and, on the other hand, are extremely painful in old primigravidæ. Decidedly rare are cases in which labor, in absolutely healthy women, proceeds with so little pain that the patient is not even aware of the fact that she is in labor.

Such a case of entirely painless labor in a primigravida, 28 years old, is described by Wolff. This patient was absolutely well and a most careful examination did not reveal any symptoms of either tabes or myelitis or even hysteria.

MALIGNANT AND BENIGN DEGENERATION OF UTERINE MYOMAS.—Winter (*Zeitsch. f. Geb. und Gyn.*, vol. 57, H. 1.)—A simple myoma is an essentially benign growth. In his personal experience he met only with twelve cases of myoma with corporeal cancer, and only in four cases the diagnosis has been made previous to operation. Whenever a myoma presents uncommon symptoms such as bleeding after cohabitation, hemorrhages in the menopause, a sanguinolent, pinkish discharge, severe pain independent of menstruation, etc., a cervical cancer should be suspected and carefully sought for. There is no just reason for giving up supra-vaginal amputation of the myomatous uterus in favor of total extirpation for fear of a later cancerous degeneration of the cervix, which is left behind. This is a decidedly rare occurrence, only sixteen cases of this

kind having been reported to date. The myoma seems liable to produce a predisposition for the development of a carcinoma, especially in the uterine body.

Sarcomatous degeneration, on the other hand, is not uncommon. Winter found sarcoma in 3.6 per cent of his patients suffering from a uterine myoma. Submucous myomas seem specially prone to undergo this malignant degeneration. It is interesting to note that out of his twenty-seven cases in only one was the diagnosis of sarcoma made previous to operation. The possibility of such a degeneration can not be considered a valid argument in pleading for immediate extirpation of every myoma. The diagnosis of sarcoma is difficult and usually can be made only by means of a microscopic examination. Total necrosis of a myoma he encountered just as often as sarcomatous degeneration. It is a serious and dangerous complication of myoma. These cases very often are met with immediately after a childbirth, and this fact is of importance in the diagnosis of this condition. Poorly nourished myomas are most likely to undergo cystic degeneration, while chronic congestion leads to an edema of a myoma. The indications for operation of cystic myomas, in Winter's opinion, are identical with those which should be regarded as indications for operation on myomas in general, namely symptoms which call for operation, and the one most often encountered is hemorrhage.

NEUROLOGY.

IN CHARGE OF

SIDNEY I. SCHAWB, M. D.

THE PATHOLOGY OF GENERAL PARALYSIS OF THE INSANE.—Robertson (*Review Neurology Psychiatry*, Feb., April, 1906. *The Morrison Lecture*).—An extended abstract of this paper is made necessary by the importance of the investigations here recorded and by the fact that the Morrison lectures do not fall into the hands of the general practitioner as a rule, for whom any phase of this subject should be of the greatest interest. The elucidation of the problem of the pathology of dementia paralytica has formed the chief object of research of the Scottish Asylums laboratory for a number of years. The increase in the number of persons dying with this disease as well as the increasing ratio of admissions to the asylums of individuals suffering with it testify to the importance of the subject. In general the pathology of dementia paralytica has passed through several periods. In the first period it was maintained that general paralysis was simply a manifestation of syphilis like any other late phenomenon of this disease. When it was found that antisyphilitic remedies had absolutely no effect on the course of the disease even in some cases acting the reverse, it began to be believed that the disease was not a direct result of syphilis but a secondary intoxication. This was the parasyphilitic, or metasyphilitic stage. The third period is the present in which there has arisen a feeling of scepticism in regard to the parasyphilitic toxines, the existence of which

has never been demonstrated and which are entirely hypothetical. A number of prominent neurologists all over the world have expressed their dissatisfaction with the theory of the parasymphilitic origin of dementia paralytica; Bianchi, for instance, has called it the product of premature deduction. The author of these papers arrived at his present standpoint in the following manner:

For some years he had studied the brains of paralytics in the same way that other investigators had done and was enabled to collect a mass of anatomical facts similar to theirs. These facts commonly found, the author tabulates. The idea then occurred to him that he was not studying the pathology of the disease dementia paralytica, but the effects of some toxic action, and that the toxins must have their origin somewhere outside of the brain. The author was further convinced that the syphilitic hypothesis did not account for the known facts regarding the disease. He therefore endeavored to find evidence of the occurrence of a general toxæmia and to localize the seat of the origin of the toxins. In a number of investigations carried out by Bruce, Ainslie, Macpherson and others, the theory was regarded as proven that dementia paralytica in many of its manifestations represented the resistance of an organism against bacterial invasion. Especially is this true for instance, in the febrile attacks. Further evidence of the existence of a general toxæmia was found in the occurrence of chronic endarteritis in the extracerebral vessels. In 1902 M'Rae, Jeffrey and the author began a series of bacteriological studies in cases of dementia paralytica with a view of ascertaining facts which would throw light upon the nature of the assumed bacterial toxæmia. A number of organisms were found, but among these there was one which on account of its frequency and the consistency of its location, demanded closer attention. It was found in the alimentary tract, in the lungs and occasionally in the brain. This organism resembled the Klebs-Löffler bacillus. It was recovered in seventeen out of twenty cases. On the basis of this observation the hypothesis was advanced that general paralysis is the result of a chronic toxic infection from the respiratory and alimentary tracts permitted by general and local impairment of the defences against bacteria and dependent upon the excessive development of various bacterial forms, but especially upon the abundant growth of a Klebs-Löffler bacillus of modified virulence which gives the disease its special paralytic power. In the later investigation this hypothesis has been put to the test and every step forward has been attended with elucidation of some fresh fact that has rendered it more probable. A histological investigation of the supposed infective foci in a series of twenty cases in the catarrhal exudations in the respiratory and alimentary tracts showed a bacillus identical in form and staining reactions with the organism isolated by cultural methods. A culture made from the organisms was injected into a goat for the purpose of obtaining an immune serum. After a time the animal developed a staggering gait and had an attack closely resembling that found in general paralysis. After its death a culture obtained from it showed the presence of the identical bacillus referred to above. The examination of the nervous system revealed changes which resembled those found in *tabes dorsalis*.

Further investigation showed that the bacillus was found very often in the genito-urinary tract. It is true also that this bacillus has been found in the genito-urinary tract of patients who had no trace of dementia paralytica, but never in such numbers. The next step was the experimental study of the action of the phagocytes and blood serum upon the diphtheroid bacillus isolated from cases of general paralysis. There was reason to suspect that certain indistinct granular, or rod-like bodies observed in the cerebro-spinal fluid in the walls of the cerebral blood vessels in the blood and in the urine were really diphtheroid bacilli that had suffered from the effects of a lysogenic or solvent action. In connection with this part of the study there is given a careful description of the organism in its morphological and staining reactions, and numerous other data are added to aid in identifying the organism. Inasmuch as the authors felt that this organism was the essential pathological agent in general paralysis they gave to it the name bacillus paralyticus. In referring to this organism as the specific agent in dementia paralytica the authors are careful to allow for the chance that there may be some doubtful points in their work, thus avoiding the dogmatic character so noticeable in studies of this kind. It has the general morphologic character of the Klebs-Löffler bacillus, its most striking characteristic perhaps, being its polymorphism, and in this respect it appears to excel at least the virulent form of the Klebs-Löffler bacillus. Agglutination tests were carried out as well as tests for the opsonic action. Pure cultures were obtained from the blood in four cases of the disease. It can be seen from this that no effort was spared to study the bacterial side of the question from all points of view. The article is illustrated by clear microphotographs of the organism in various conditions and in various structures.

In the last of these three lectures the author summarizes his work and among other significant points he mentions the following: The role of syphilis in the causation of dementia paralytica and tabes is only that of weakening the general and local defences, and that these diseases must be dependent upon an active bacterial toxæmia. The reasons for this view are carefully stated and Robertson is careful to mention that the theory which assumes that the secondary toxæmia is a result of the syphilitic infection is untenable. The other question whether the organism in question is merely an attenuated Klebs-Löffler bacillus, or one of specific agency, is left open and is not of any great importance in the question, but the author is inclined to believe that further study will show the organism is a special one. Some of the evidence for this view is given as follows: A bacillus of this nature is present in large numbers either in the alimentary or the respiratory tract, or both, and in the genito-urinary tract, in all cases of advancing general paralysis; this bacillus has a thread form which has been found invading the walls of the respiratory, alimentary tracts in five cases of general paralysis; it can be shown that this organism in its bacillary form invades the pulmonary tissues in cases of general paralysis and that it is commonly the only micro-organism present in large numbers in the catarrhal pneumonic foci that occur in most of such cases dying of congestive attacks. A growth of diphtheroid bacillus has now been obtained in cultures made

from the brain, post-mortem, in ten cases of general paralysis out of twenty-four in which cultures were obtained from this organ. Diphtheroid bacilli exhibiting metachromatic granules in Neisser preparations have been detected in the fresh blood of one case and in sections of the brain in two cases. It has been ascertained by experimental methods that these diphtheroid bacilli in contact with the living blood are rapidly taken up by the polymorphonuclear leucocytes and that they may be completely digested in the course of two or three hours.

Bodies exactly corresponding in appearance to these dissolving bacilli can be detected in the blood and in the cerebro-spinal fluid of the living general paralytic especially during the congestive attack. Pure growths of the bacillus were obtained from the fresh blood in four cases of general paralysis and from the cerebro-spinal fluid withdrawn by puncture in two cases. The centrifuge deposit from the urine of the general paralytic especially during a congestive seizure, commonly contains abundant diphtheroid bacilli that have been more or less affected by lysogenic action. Having advanced proof of the specific character of this organism a portion of which is quoted above, the author now advances the following as his explanation of the pathogenesis of this disease. The outline of this scheme is as follows: The specific bacillus, which can now be called bacillus paralyticus, can be conveyed from individual to individual by contagion. It is capable of living as a saprophyte at the surface of the various mucous membranes. There is ample warrant for the conclusion that to a person whose general and local defences against bacteria are intact the bacillus paralyticus is quite innocuous. It can neither multiply to any important extent upon a healthy mucosa, nor penetrate into the subjacent tissue. If, however, the mucosa is damaged, as it commonly is in dementia paralytica, the growth and the further extension of the bacilli are not impeded. Syphilis, alcohol and a too highly nitrogenous diet are factors which lead to an impaired general and local defense in this disease. The leucoblastic function of the bone marrow is likewise impaired by syphilis as is proven by the lodgement of the spirochæte in the epithelial cells including those of the bronchi. The pathogenesis of tabes from this point of view is also taken up and the paper concludes with the mention of the attempts which are being made to produce an antiserum and the difficulties that were encountered.

[Whatever individual opinions may be held in regard to the correctness of the views expressed in this series of researches, and however artificial may appear the reasoning that connects the experimental data with observed clinical facts, yet the work itself should be looked upon as of the greatest significance. Its further progress should be followed with care. It is not too much to say that Robertson's investigation, here outlined, is the most important piece of work on dementia paralytica that has appeared since the early clinical work which established the disease as a clinical entity. As this is the first serious attempt to bring together all the facts in this disease and to establish by means of experimental methods the connection between the end result of the pathological process and the active agents that produce them, it should be given the place in literature which belongs only to an investigation conceived in the broad way that this has been and carried out in the comprehensive manner which this abstract only faintly shows. Editor.]

OPHTHALMOLOGY.

IN CHARGE OF

JOHN GREEN, JR., M. D.

SOME INJURIES TO THE EYE FOLLOWING SUBCONJUNCTIVAL INJECTIONS OF SALT SOLUTION.—L. Alexander (*Arch. of Ophthalm.*, January, 1906). Subconjunctival injections of bichloride of mercury have fallen into disuse for a number of reasons. It was shown that eyes thus treated remained in an irritable condition after complete cure of the condition for which the treatment was instituted. The conjunctiva became thickened, dirty red, and of a jelly-like consistence, and in many cases was found so firmly adherent to the sclera that it could not be dissected off. Furthermore, experiments have shown the unlikelihood of the bichloride reaching the interior of the eye, to act there as a disinfecting agent. Bichloride is effective only in its capacity as a salt by exciting currents of diffusion in the lymph channels, and even this power is very slight since the larger part of the bichloride is changed into an insoluble albuminate of silver in the tissues.

These facts brought about the substitution of sodium chloride for the bichloride of mercury in subconjunctival injections. As a rule the salt injections have proved innocuous even in strong solutions (up to 33%) and have been of undoubted efficacy in a certain class of diseases.

Alexander cites three cases illustrating untoward by-effects of salt injections. The first was that of a young woman who had been treated with numerous injections of a 2½ to 5 per cent. sodium chloride solution for interstitial keratitis. Some time later, firm adhesions between the conjunctiva and sclera were demonstrated by the use of dionin which disclosed numerous white linear scars indicating the points of adherence between conjunctiva and sclera. In a second case, one of recent choroiditis, the injection of a 10 per cent. saline solution was followed by severe pain in the eye with increasing irritation, photophobia and lachrymation. Four days later the bulbar conjunctiva began to show signs of beginning gangrene. The necrotic patch extended from the lower fornix to the lower part of the limbus. The cornea became superficially roughened. The anterior part of the lens presented two linear opacities. Shortly after, the cornea and lens cleared up, the necrotic conjunctiva separated, the defect healing by scar formation. In the third case both cornea and lens showed temporary opacities following subconjunctival injections of 5 per cent. sodium chloride. Alexander believes that the changes in the cornea and lens were due to exudations which were afterwards absorbed.

THE REMOVAL OF SMALL FOREIGN BODIES FROM THE CORNEA, CONJUNCTIVA, ETC.—F. Allport (*Iowa Med. Jour.*, April 15, 1906).—Foreign bodies that have lodged on the conjunctiva of the upper or lower lid are best removed by gently stroking with a cotton wound applicator. Occasionally an eyelash will lodge in the lower punctum from which it can be removed by forceps. (The reviewer once removed a hair from the lower punctum which had fallen into the eye while the patient was having his hair cut.)

In order to determine the existence of a foreign body in the cornea or sclera, the surface should be carefully inspected in a good light by the aid of a powerful convex lens. If necessary, light may be focussed upon the cornea by means of another convex lens. A solution of fluorescein (2 per cent.) dropped into the conjunctival sack will color all denuded areas green, thus serving clearly to outline the extent of the epithelial loss.

The removal of the foreign body must be conducted with strict regard to every rule of asepsis. The author cites the frequent dire results of removal of foreign bodies in factories by the so-called "shop oculist"—a workman who with a rough unclean tool scrapes away at and around the foreign body. Many a patient who does not lose his eye from infection as a result of these unclean methods, does suffer from subsequent extensive scarring of the cornea in consequence of the unnecessarily large amount of corneal epithelium scraped away by the bungler.

No attempt at removal should be made until the cornea is well under the influence of cocain. The skin in the vicinity of the eye should be surgically clean and the conjunctival sack well irrigated with boric acid or weak sublimate solution. A drop of Argyrol, 25 per cent. is used both before and after removal of the offending particle.

Allport states his preference for a slender Graefe cataract knife for the removal of foreign bodies, having proved in his hands the best instrument for getting behind the fragment which is thus easily shelled out. In case the foreign body is so deeply imbedded that attempts at removal might force it into the anterior chamber, it is well to resort to the various forms of eye magnets (if the body be of steel or iron), or even to introduce a Graefe knife into the anterior chamber, the blade supporting the body from behind while efforts are made to remove it from the front. The small eschar left after the removal of a hot particle should be lifted out bodily with the knife.

Glass fragments usually produce a clean incised wound. Such fragments are often difficult to see and must be sought for under oblique illumination at different angles.

The essential object to be attained in all corneal injuries and especially those located in or near the center of the cornea is to limit the destruction of the tissue to the smallest possible area in order that vision may be interfered with as little as possible.

Recent abrasions should be treated with a two per cent. solution of boracic acid or a ten per cent. solution of Argyrol supplemented by cold compresses, ocular rest and quiet. In the presence of a beginning infection the treatment should be more energetic: cauterization with carbolic acid or tincture of Iodine, followed by atropine solution, Argyrol and hot water fomentations.

Badly neglected cases which present themselves with deep ulceration, plastic iritis, and hypopyon should be placed in a hospital and the following treatment instituted: The ulcer should be curetted and cauterized, a two per cent. atropin solution should be used several times a day, a twenty-five per cent. solution of Argyrol used four times a day, very hot water fomentations several times a day and a Crede ointment poultice applied to the eye at night. The patient's general condition should be carefully looked after. Pilocarpine sweats and large doses of sodium salicylate are occasionally useful adjuvants.

A NEW EXPERIENCE IN THE DIAGNOSIS OF SARCOMA OF THE CHOROID IN THE SECOND STAGE.—L. Buchanan (*Ophthalm. Review*, April, 1906).—An elderly woman had moderately advanced cataract in the right eye, beginning cataract in the left. Four months later the cataract in the right eye was found advanced but not yet ripe. Shortly after, the eye became painful and was found in a condition of subacute glaucoma with high tension. Excellent miosis was produced by eserine which, however, had no effect upon the tension. Finally a large peripheral iridectomy was performed, which availed no more in reducing the tension than had the eserine drops. The conclusion was inevitable that the true condition was an intraocular tumor and the globe was excised. On section, a small melanotic sarcoma was found growing from the neighborhood of the optic nerve entrance. The most important point in the case, however, was the fact that the retina was found to be very completely separated and tightly pressed forward against the lens and ciliary body.

The following explanation is offered to account for the non-reduction of the tension in this case: The anterior chamber was very shallow, owing to the lens being pressed forward by the retina, and the entire globe was probably, to a very slight extent, distended. When the anterior chamber was opened, the tension of the tunics of the eye was relaxed and they then contracted upon what was to all intents and purposes a separate cyst in the interior of the globe. This separate cyst was formed by the sclerotic behind and at the sides, but was bounded in front by the retina supported by the lens and ciliary body in such a manner that no rupture took place when the corneal wound was made. It is not improbable that, had a large incision been made in the cornea the retina would not have been sufficiently well supported and a rupture would have taken place.

LARYNGOLOGY AND OTOTOLOGY.

IN CHARGE OF

WILLIAM E. SAUER, M. D.

A SYPHILITIC GUMMA AT THE BIFURCATION OF THE TRACHEA.—H. Von Schroetter (*Monatsschrift f. Ohrenheilkunde*, Vol. XL., Heft. 1.)—The author reports a syphilitic gumma at the bifurcation of the trachea in a man aged 49. He had become infected twelve years previously, but had been regularly treated. When first seen the man was markedly dyspneic. The dyspnea had been gradually getting worse. An examination of the chest revealed a slight bronchitis. The larynx was found normal. A direct tracheoscopic examination revealed an inflamed looking mass on the posterior wall of the trachea just at the bifurcation. The opening into the left bronchus was somewhat stenosed. About 3 cm. above the bifurcation there was a small ulcer. The patient was given the mixed treatment. The following day he was taken with a severe attack of dyspnea. He grew very cyanotic and was only saved by the prompt use of stimulants. The two days following the patient had similar attacks. A long tracheoscopic tube was then introduced and small portions of the infiltration were re-

moved with forceps. The bleeding was slight. A microscopic examination of the pieces removed showed them to be granulation tissue. The luetic treatment was continued and the patient began to improve rapidly. A tracheoscopic examination six months later revealed that the infiltration had entirely disappeared, but the opening into the left bronchus had somewhat contracted, though there was no interference with the passage of air. This case presents two points of interest: 1. The appearance of a luetic lesion 12 years after a regular treatment has been given. 2. The value of a direct tracheoscopic examination, as the diagnosis in this case would, no doubt, not have been made without it.

CATARRHAL DEAFNESS.—White (*British Medical Journal*, March 10, 1906).—The recovery of hearing after otectomy in many cases of suppurative otitis media, has led the author to try the operation in catarrhal deafness. The author has previously published his results on a number of cases operated upon. He now briefly reports two other cases in which there was considerable improvement following the operation, but they have been too recent to determine the permanency of the results. One case is mentioned that had been operated upon two years previously with most excellent results and there has been no loss of hearing since that time. There was some improvement in all the cases operated upon.

ASPIRATION OF THE TYMPANIC CAVITY AFTER PARACENTESIS. A VALUABLE AID IN THE TREATMENT OF ACUTE OTITIS MEDIA.—Friedenberg (*Medical Record*, Vol. LXIX., No. 9).—The author has been employing aspiration of the tympanic cavity after paracentesis in cases of acute otitis media for the past six years, with the result that the pain is relieved and free drainage is provided for. It also overcomes the tendency of the incision in the drum to close. The removal of the inflammatory exudate and the flowing out of blood serum into the tympanic cavity prevents septic clot formation. Also, in cases of children when there may be a doubt as to whether the drum has been properly incised, the application of suction will settle the question. Friedenberg's method of application is as follows: An olive shaped glass bulb about 5-8 of an inch wide with a very blunt tip is pressed against the external meatus, hermetically plugging the canal. Suction is then applied by means of an ordinary piston syringe.

THE AIMS AND LIMITATIONS OF INTRA-NASAL SURGERY IN THE TREATMENT OF CHRONIC NONSUPPURATIVE AFFECTIONS OF THE MIDDLE EAR.—Harris. (*N. Y. Medical Journal*, April 14, '96).—The relation of nasopharyngeal and nasal disorders to deafness has been a much discussed subject. After discussing the present status of the question the author concludes as follows:

1. The nose plays an important role as a causative factor in many cases of otitis media, but by no means in all such cases.
2. That the lesion in the nose is usually of an obstructive nature, acting as an obstacle to proper ventilation of the middle ear.
3. That in beginning cases of hypertrophic otitis media a certain amount of improvement in the hearing can be confidently expected by restoring proper ventilation of the cavity through measures addressed to the nose,

with the aim of relieving nasopharyngeal and tubal inflammation; but that (a) as yet only such cases of disease call for nasal treatment as show pathological changes in the throat, these demanding attention apart from the condition of the ear; (b) that it is important to determine the true nature of the process in the middle ear, as the sclerotic or so-called hyperplastic form is not influenced at all by such treatment; and (c) that adhesive changes and ankyloses cannot be expected to yield, however completely the nasal obstruction is removed. In a word, that while suitable cases are capable of being helped, many cases of chronic otitis media associated with certain nasal obstructions do not call for and will not be improved by any form of nasal treatment, and that all such treatment in these cases is unjustifiable and unwarranted.

4. That an important result to be secured by treatment is the relief afforded from the repeated attacks of acute rhinitis which by their effects on the Eustachian tube are wont to aggravate the chronic condition.

5. That tinnitus aurium vertigo are at times benefited by nasal treatment.

6. And finally, that because of the importance of treatment to the nose and throat a closer association clinically of otology and rhinology is urgently demanded.

DERMATOLOGY AND SYPHILIS.

IN CHARGE OF

MARTIN F. ENGMAN, M. D.

THE ETIOLOGY OF RELAPSES IN SYPHILIS.—J. Neumann, Vienna (*Medical Record*, April 28, 1906).—Although syphilis has been made the subject of many researches, and is one of the best known diseases, one of its most characteristic peculiarities, its relapses, has not been explained adequately from an etiological point of view, and the origin, localization and period of occurrence of syphilitic relapses should be made the object of frequent research. In spite of our more accurate knowledge of the causative agent of the disease, the explanation of the origin of the primary infection and of the relapses is still far from complete, and so long as we remain in ignorance of the relations of the incitants of disease to the biologic processes of the body, we shall be unable to solve these questions in a satisfactory manner. Regarding Virchow's hypothesis, quoted by Lesser, probably the first theory founded upon an anatomical and clinical basis, it must be admitted that it cannot be regarded as absolutely correct even for the earlier relapses, in which a contamination of the blood stream can be taken for granted, the condition Virchow evidently had in mind, since his theory assumed that the lymph glands formed the main repositories of the syphilitic virus from which intermittent infections of the organism took place. Relapses often occur in syphilis without demonstrable swelling of the lymph glands, and enlarged glands often persist for long periods of time without any relapse. But though the syphilitic glands are the foci of virus which may penetrate the juices of the body and evoke a new eruption in any region, repeated histologic researches have demonstrated that every portion of the body which has

been the seat of a well developed syphilitic product retains the residua of this and, during many years, like the lymph glands, may serve as a depot of virus which, under suitable conditions, may give rise to a relapse *in situ* or in a more remote region. That these deposits may diminish and finally completely disappear is in accordance with their biologic character. This is a sufficient explanation of the progressive diminution in frequency and intensity of the lesions, the unsymmetrical nature of manifestations, the diminished or totally lost virulence and the entire disappearance of relapses which is in proportion to the period of duration of the disease. The author emphasizes the fact that the syphilitic lymph glands, owing to their structure and function, are especially well adapted to be repositories of the syphilitic poison. It may be the case that the syphilitic virus may remain longer in the lymph glands until through some cause it passes into the lymph stream, so that it seems plausible to believe the lymph glands may have their part in the virus which gives rise to the late relapses, if they do not furnish it entirely. Those relapses which occur after a free interval of one or more decades are very remarkable and difficult to explain, but the existence of latent intervals of ten or more years has not been indubitably proven. Syphilitic symptoms may escape even the most careful observation, provided this is not continuous in the strictest sense of the word, yet the author does not deny absolutely the existence of long periods of latency. It may be regarded as an accepted fact that relapses occur also in portions of the body where no lesions occurred originally.

Those late relapses situated in regions where originally there was no syphilitic lesion are far from easy to explain in regard to their localization, singleness of occurrence and special conditions of formation. Lesser agrees with Unna in regarding late relapses of syphilis (tertiary lesions) as newly developing remains of old syphilitic products persisting from the years of the secondary or primary stage. This view the writer believes to be true only of relapses *in situ*. In the formation of the metastatic variety, probably the remains of the early syphilitic products also furnish the carriers of the syphilitic germ, but these must first effect an entry into the lymph or blood circulation and must possess a degree of virulence which renders them capable of producing a new lesion when present in sufficient numbers on suitable soil. If there were continuously present in the blood, syphilis germs in such quantities and of sufficient virulence to produce syphilitic lesions in any portion of the organism, then some syphilitic manifestation would have to be present in the body at all times. But most careful observations have shown that this is not true. The author does not affirm that in the latent periods, even after the first two years following infection, the blood stream is absolutely free from syphilis germs, but he assumes that during the period of latency any germs that may be circulating in the blood stream are not capable of evoking a lesion in the body itself, either through quantitative or qualitative weakness, or both of these together. He says "in the body *itself*" in view of the frequently observed fact that a pregnant woman with latent syphilis who does not exhibit any symptoms of the disease during her pregnancy, brings forth syphilitic offspring. This fact that from the blood stream of the mother with latent syphilis germs which have

passed into the fetus may produce severe lesions although they do not give rise to any manifestations in the body of the mother; the fact that individuals with latent syphilis who do not display any symptoms may transmit syphilis through an inconspicuous fissure by contact, causing a typical chancre to develop; that, therefore, germs which in the first organism were unable to produce a lesion evoke typical changes in the second, among other things lead to the conclusion that in the tissues themselves certain conditions must exist in order to cause a syphilitic lesion to be developed. This is spoken of as a "suitable soil," or "lessened resistance," but this is only an excuse for our defective knowledge.

The conditions governing the localization of metastases in a single organ or portion of an organ are still unknown, which is also the case in other infectious diseases. The author observes that if we keep in mind the route which the syphilis germs must travel in their passage from the organism of the mother into that of the fetus, we shall come to the conclusion that there is justification for the view that syphilis germs which have entered the blood stream from some residual focus are capable of traveling long distances in the body. In this way the first condition of the production of metastatic relapses of syphilis is shown to be a possible and real occurrence, and these facts indicate that the small amount of syphilis germs that pass into the blood from the residual foci is probably the chief cause of the scanty and isolated appearance of metastatic, late relapses; but not the only cause, for in the case of an infection produced by a small fissure on the lip of an individual with latent syphilis, the number of syphilis germs transmitted, though able to produce a chancre at the place of contact, is very small, while the much larger number of germs present at the same time in the infecting organism does not give rise to any manifestations. Hence there must exist in the tissues themselves certain conditions, and this is the second factor in the explanation of the asymmetry and singleness of late syphilitic relapses. When one considers the well known fact that in individuals with latent syphilis a syphilitic lesion is to be produced by inoculation even with highly virulent syphilitic secretion only after the application of considerable irritation (that is, the production of suitable conditions in the tissues), it will be apparent that in an organism which has for a long time been the seat of latent syphilis, the situations in which the conditions necessary for the development of a syphilitic product exist are few and far between. The author concludes that (1) the late syphilitic relapses, the relapse *in situ* as well as the metastatic relapse, have their origin in the microscopically demonstrable syphilitic products, including the syphilitic lymph glands, which persist after the disappearance of the clinical manifestations. These may exist a very long time, even more than a decade. (2) The complete elimination from the organism of all the germs of the disease as promptly as possible, therefore, follows as a fundamental indication in the treatment of syphilis.

The reviewer has considered this paper so much at length because he considers it one of the most important articles on the subject that has appeared in recent years.

BOOK REVIEWS.

A TEXT BOOK OF LEGAL MEDICINE. By F. W. Draper, A. M., M. D. (Harv.), Professor of Legal Medicine in Harvard University; Medical Examiner for the County of Suffolk, Mass., etc. W. B. Saunders & Co., Philadelphia and London. 1905.

This text book, the outgrowth of an unusually large experience as medical examiner for Boston, must be regarded as the most valuable of the recent books on this subject.

The position that Draper occupied for so many years gave him opportunity to collect a mass of data on the subject of legal medicine of which important use has been made in the writing of this book. It is impossible to point out the many chapters deserving praise. It is sufficient to note that they reflect the spirit of long experience, accurate observation and an intense desire for the truth. The chapters on medical witness and expert medical testimony should be carefully read by every one who may come in contact with the courts of law either as a witness or as an expert. From the very nature of his calling, every physician will, some time or another, become a witness as to fact. The insistence on absolute fairness on the part of the medical expert witness should be carefully considered by the readers of Draper's book. The lamentable state of expert medical testimony in America rests chiefly upon the lack of the necessary knowledge on the part of the medical expert that he is required by the law to be just this. Until a better book than this appears, which will not be for a long time, Draper's book should be a part of the library of physicians and students in qualifying them for the position which their profession entails upon them in its relation to the law of the community in which they live.

GUIDE PRATIQUE DU MEDECIN DANS LES ACCIDENTS DU TRAVAUX. Leurs suites medicales et judiciaires, par Em. Forgue, professeur de clinique chirurgicale a la Faculte de Montpellier, correspondant de l'Academie de medecine, et E. Jeanbrau, professeur agrege a la Faculte de Montpellier, lauréat de la Societe de chirurgie. Avec une preface de M. Jean Cruppi, avocat a la Cour de Paris, depute de la Haute-Garonne. 1 volume in-8° de 370 pages (Masson et Cie, editeurs). Paris.

This book is the outcome of the law passed in France in 1898 by which injuries received accidentally or as a result of certain work were to be adjudicated in the light of the best information to be obtained. By this law, the judge, before whom the case was tried, would be required to be informed concerning the question in its various phases. To do this intelligently required information of many different sides of such injuries. To furnish this, the authors of this book place before their readers an exposition of the subject adapted to this end. The more common injuries due to different kinds of work and machinery are given with methods to obtain the desired data. A chapter on simulation and on medical and one on expert testimony are valuable additions to the work. Although this book has been written from the point of view of the French courts and the French law, yet it contains much that might interest an American reader. Especially is it valuable for him to know how much better is the system in France than the one in vogue in this country. The contrast between the two is so noticeable that the American reader might, as a result of his knowledge, become one of those who will make the effort to change the condition here.

ATLAS AND EPITOME OF THE DISEASES OF THE SKIN. By Dr. Franz Mrazek. W. B. Saunders & Co., Philadelphia and London, 1905.

The second edition of this little hand atlas has been revised and enlarged; translated and edited by Dr. Henry W. Stelwagon, of Philadelphia. It con-

tains seventy-seven colored plates and fifty half-tone illustrations. This volume is so well known and so popular that it is hardly necessary to dwell upon its merits. One who has had experience with skin diseases knows how futile are pen pictures of their various phases. A photograph or plate, well produced, shows more at a glance than the best pen picture could accomplish. The moderate price of this atlas and the excellence of its plates have given it wide distribution.

NATALITY AND FECUNDITY. A Contribution to National Demography. By C. J. Lewis, D. Sc., M. D., Edin., and J. Norman Lewis. New York: William Wood & Co. 1906.

The birth registers of Scotland for the year 1855 are unique for their comprehensive detail; indeed, so laborious was the work of entry that in the succeeding year the schedule was considerably restricted. More fully than has yet been attempted, these statistics have been utilized in the volume before us. It is impossible to even outline here the interesting results which were obtained in the investigation of such problems as comparative fertility and fecundity, initial fecundity, chronology of births, masculinity, sterility, etc. Physicians interested in these questions will find in this volume an enormous amount of valuable information.

INTERNATIONAL CLINICS. Vol. IV. Fifteenth Series. 1906. Philadelphia and London: J. B. Lippincott Co.

This volume of the International Clinics is, if possible, richer in material than many of the preceding volumes. It contains, among many others, an article on the effects of Roentgen Rays upon the blood-forming organs, by Professor Warthin of Ann Arbor, the Symptomatology and Diagnosis of Malta Fever, by Charles F. Craig, the Later Stages of Cirrhosis of the Liver, by Sir Dyce Duckworth, Nervous Disorders in which Psychotherapy May Prove of Value, by Gilbert Ballet, the Therapeutic Value and Mode of Action of Physiologic Saline Solution, by Dr. Hallion and Dr. Carrion.

READY REFERENCE HAND BOOK OF DISEASES OF THE SKIN. By George Thomas Jackson. Lea Bros. & Co., New York and Philadelphia, 1905.

That this book has reached its fourth edition testifies to its popularity and excellence. The author has brought the book thoroughly up to date, and added some extra chapters. Although the articles on the various diseases are short, yet they are sufficient to give the reader a clear insight into the subject. The great number of excellent prescriptions contained in the appendix also adds to the value of the little volume.

DISEASES OF THE NERVOUS SYSTEM RESULTING FROM ACCIDENT AND INJURY. Pearce Bailey, A. M., M. D. D. Appleton & Co., New York.

This is a second edition of Bailey's earlier work treating of the same subject. In this edition the author has extended the scope of his book until it includes data on all traumatic affections of the nervous system. The present volume is written from the neurologist's standpoint, which adds much to the value of the work, as treatises from the point of view of a surgeon are common enough. This book may be said to fulfill its purpose very well, and from it one can readily appreciate that the personal experience of the author, which has been considerable, has been used to the utmost advantage. The chapter on injuries to the spinal cord is especially to be mentioned, chiefly for the sane position the author takes on the question of diagnosis and prognosis. The part devoted to the surgical aspect of this condition ought to be read carefully by every surgeon who has occasion to operate on the spinal cord for injury. The question that confronts every neurologist, both in practice and in questions which come up in the courts, is the influence which trauma exerts in the causation

of certain degenerative diseases of the nervous system. The author accentuates the difficulties in the way of an absolute proof that head trauma is a direct cause of paresis, though, in the course of suits for damages, it is frequently asserted that it is. The chapter on malingering is likewise worthy of praise, and the account of several well-known cases of this sort adds much to its value. As might be expected, the chapters on neurasthenia and hysteria are well presented and full of the practical points which are necessary for use in actual cases. This book can be heartily praised both for what it contains and for the calm and scholarly manner in which it is presented.

A TEXT-BOOK OF HUMAN PHYSIOLOGY, INCLUDING A SECTION ON PHYSIOLOGIC APPARATUS. By Albert P. Brubaker, A. M., M. D. Second Edition. Philadelphia: P. Blakiston's Son & Co. 1905.

The fundamental problem that confronts the writer of a text-book of physiology is the question what to leave out and what to include. The field of physiology is now so vast that it is quite impossible to include in one volume everything of importance. Moreover, physiologic research is making such giant strides that a book has hardly appeared before, in many respects, it is behind the times. Thus, in this volume, the chapter on proteids, adequate when it was written, fails to include the recent fundamental work of Emil Fischer. On the whole, the amount of material that the writer has been able to compress within the compass of some 700 pages is extraordinary, and as a book of reference the volume will be found useful. On the other hand, this very condensation has interfered with the readability of the text, so that it will hardly hold the attention of the student as well as the less inclusive and more discursive book of Howell. A book as inclusive and at the same time as fascinating as the German Physiology of Tigerstedt still remains to be written in the English language.

DIE GESCHLECHTER DER THIERE. By Dr. P. J. Moebius. Carl Marhold, Halle, 1906.

In this little brochure Dr. Moebius continues his study into the sexual problem which for some years has been interesting him. The series began with a study of the physiological weak-mindedness of women. This little monograph attracted a great deal of attention in Europe, and seven or eight editions were required to satisfy the demand. The whole series come under the general title of contributions to the question of sexual differences. The comparative side of the question must be considered as a new departure, and in this volume the question of animal sexuality is treated in the same fashion. Whatever one may believe of the place such a work may have in the scientific literature of the sexual question, one cannot help being interested in the manner in which the author handles his subject. Moebius possesses an entertaining style and writes with conviction that cannot be denied. Nevertheless one must admit that Moebius, in these monographs, seems to be attempting to force into whatever part of his subject he is considering, the main thesis, and that is, the inferiority of women in the scheme of creation and the wrong place she has come to fill through the development of traits which are not by nature hers. If this position is clearly recognized, then the perusal of these various brochures possesses a certain amount of interest, though Moebius may fail to convince his reader as readily as he himself is convinced of the correctness of his point of view.

URSACHEN UND FOLGEN DER RECHTSHAENDIGKEIT. Von Dr. Ernst Weber. Carl Marhold, Halle, 1905.

This is one of those semi-popular monographs which have obtained so much vogue in Germany. The value of such books depends upon the care with which the material is handled, so that the lay reader is not lead astray by data that are not accurate and that are not correctly interpreted. With much practice the Germans have acquired a talent for this sort of writing that is remarkable,

considering the difficulty of presenting a scientific subject to an unscientific public. This book is an admirable example of this class of work. The author begins by considering the question of right handedness from the comparative point of view and the presence of it in infants. There is, of course, a historical chapter on righthandedness with an additional chapter of the same in the present time. Various theories are considered to explain the state of things as we see it now, and the consequences are next considered. The interesting question of the influence of righthandedness in the development of the speech center on the left side of the brain is carefully gone into and the author believes that this cannot be the sole cause of this condition. Enough has been pointed out to indicate the scope of this work, and the suggestion is added that the reading of the little book will repay the effort if only to introduce one into the class of popular scientific literature which has at present such a vogue in Germany, so that a taste for this sort of thing may follow in this country, where the need of it is felt very strongly.

THE INTERNATIONAL MEDICAL ANNUAL. A Year Book of Treatment and Practitioner's Index. Twenty-fourth year. New York: E. B. Treat & Co., 1906.

The appearance this year of the Medical Annual was somewhat delayed by a distressing accident, namely, the total destruction by fire of the offices at a moment when a large part of the volume was in type. This necessitated the rewriting of a considerable portion of the contributions.

The volume presents a review of the therapeutic progress of the year. In the first part the work done on the various drugs is discussed; in the second part, therapeutic advances, both surgical and medical, are taken up under the captions of the various diseases concerned, arranged alphabetically; the third portion is devoted to a discussion of some of the year's happenings in sanitary science. An elaborate index adds greatly to the value of the volume.

MENSTRUATION AND SKIN DISEASES. By L. Duncan Bulkley, A. M., M. D., Physician to the New York Skin and Cancer Hospital. New York: Rebman Co. 1906. Price, \$1.00.

For the last twelve years the author, an eminent dermatologist, has collected data concerning the influence of the menstrual function on certain diseases of the skin. The results of these studies are embodied in this interesting little volume of 108 Demy 8vo. pages. The numerous case records, together with the carefully collected literature on the subject, form a most valuable contribution to the still obscure relation existing between sexual function and the etiology and course of certain dermatoses. The volume will prove of equal interest to the dermatologist, gynecologist and general practitioner.

A SYSTEM OF MEDICINE by many writers. Edited by Thomas Clifford Albutt, Regius Professor of Physic in the University of Cambridge, etc. New and Cheaper Edition. Volume I. New York: The Macmillan Co. 1905.

The rapid progress made in the medical sciences has necessitated the preparation of a new edition of this largest and possibly best of all systems of medicine. Albutt's work is too well-known to call for an outline of its scope and excellency at this place. The new edition is brought up-to-date by the addition of much valuable material, thus, e. g., to etiology alone the whole chapter of bacteriology had to be added. In order to avoid an enormous expansion of this work, historical matter for the most part has been omitted and all "overlapping" parts as far as possible excised. Footnotes, as a rule, have been excluded, and references in the text replaced by select bibliographies.

The first volume of almost a thousand pages consists of two divisions. The first, entitled "Prolegomena," comprises a large number of interesting articles on such subjects as medical statistics, temperament, laws of inheritance, pathology of nutrition, principles of drug therapeutics, nursing, hygiene of youth, life assurance, etc., etc. Division II is devoted to the "Fevers," and consists of two

parts. Part I is an essay of Sir Joseph Fayrer on Isolation and Sunstroke. In Part II, entitled "Infections," all the infectious diseases are considered.

CLINICAL OBSTETRICS. By Robert Jardine, M. D., Edin. M. R. C. S. Eng. F. F. P. & S. Glas. F. R. S., Edin. Professor of Midwifery in St. Mungo College in Glasgow, etc. With 99 illustrations and a colored plate. Second Edition. New York: Rebman Co. 1905. Price, \$4.75.

The intention of the author to present a treatise exclusively devoted to the clinical side of obstetrics is quite evident. After a short introductory chapter on asepsis in midwifery, the writer at once goes *medias in res* by devoting Chapter Two to a consideration of the symptoms of pregnancy. The volume abounds in valuable practical suggestions, but gives no space to anatomic, physiologic or embryologic subjects. Numerous case reports are given as illustrations. Whether this feature enhances the value of this otherwise excellent volume seems more than doubtful. Chapter XXIX., e. g., deals with eclampsia and comprises 42 pages, 32 of which are taken up with a recitation of the histories of 30 cases of eclampsia.

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ORIGINAL ARTICLES.

CLASSIFICATION OF THE CAUSATIVE FACTORS OF RAILWAY AND ALLIED INJURIES, BASED UPON THE KIN- SIC STATES ASSUMED BY THE INJURED INDIVIDUALS— ALONG WITH AN ANALYSIS OF 82,361 RAILWAY INJURIES.

By WARREN B. OUTTEN, M. D., of St. Louis.

The investigator cannot fail to be appalled in reading the various estimates given by different statisticians concerning the number of personal injuries occurring in the United States, arising in and incidental to, different industrial pursuits. It is to be deplored that the statistics compiled by the Inter-State Commerce Commission are justly criticised for their imperfect showing. Notwithstanding this fault they give a basis from which important conclusions can be formed. The following show the number of injuries occurring upon railways for the year 1904:

	Killed.	Injured.
Interstate Road	9,984	78,247
State Roads	975	7,500
Trolley Lines	340	52,169
Total	12,299	137,916

We quote from W. J. Ghent, Watson's Magazine, which says, "When we pass from the record of particular industries to the general casualty record we are met by a mass of unintelligible figures. But Bulletin No. 83 gives the rate of fatal accidents in the cities, where registration is required, as 100.3 in each 100,000 population. For the whole registration record, as 96.3. On a basis of 80,000,000 population this would mean a yearly loss of from 77,040 to 80,240 lives. Mr. Frederick L. Hoffman, of the Prudential Insurance Company, in a letter printed in Robt. Hunter's recent volume, "Poverty," estimates the rate as between 80,000 and 85,000. This would mean from 64,000 to 68,000 killings. If we say that 25 are injured to every one killed and consider the fatal accident rate to be 80 in every hundred thousand we have it that 1,664,000 were killed annually, or are more or less seriously injured in the United States. If all minor

accidents were taken into consideration it is probable that a ratio of non-fatal accidents to fatal accidents would be nearly 100 to 1. This would mean approximately 4,800,000 minor wounds every year.

Notwithstanding the immense number of personal injuries occurring in this country, very little systematic work upon the part of the medical profession has been done in the study and interpretation of special cause. In this article now being written an endeavor will be made to systematically study and interpret special causes in railway injuries. Any one who has not had constant study and experience in the interpretation of special causes existing in railway injuries would be inclined to attribute too much influence to defective mechanical appliances, defective construction and to many erratic physical conditions arising in the operation of the railway. There is nothing in or connected with man, more amazing or confusing than his multiform mental states. There is no element about him, as a general thing, so little noticed when engaged in a selected vocation. The weightiest causes of accident are the most silent, insidious and lest comprehended. In a vocation like the railway employe, where the handling of blindly obedient and enormous mechanical power is common, hence it becomes replete with repetition and seemingly unconcerned familiarity. It becomes evident to a student of special cause that as repetition and familiarity accrue in his pursuit, the more does the employe beget a propensity to grow into transient states of absent mindedness, immediate phases of unconscious moods, wherein duty and dangerous surroundings are for the moment forgotten. A detailed account of many catastrophes properly investigated and from confidential interchange of opinion with employes in these catastrophes, have shown the writer that absent mindedness and other mental aberrant conditions are constant and fruitful causes of these railway wrecks.

Considering the immense number of personal injuries and fatalities the writer believes that it is the paramount duty of any one attending to these injuries to endeavor to bring to notice any point or points which aims to create a closer study of special cause with the hope that some protecting measure may be formed having in view a lessening of accidents, consequent injury and death.

The writer belives that if a close study be made regarding the employe's physical condition, so as to determine if there is any element or elements in the nature of his vocation tending to beget these mental states, especially should it be studied whether at any time overwork is too often indulged in, or whether an employe's habits tend to create physical condition which leads to a lack of proper mental tone. *In terse* study every element concerning the vocation, aiming to guard against the many physical conditions which are prone to lead to laxity or disturbance of normal mental health.

After thirty years' labor as a railway surgeon the writer is compelled to believe that no matter how many safety mechanical appliances are invented and used, no matter how rigid the discipline may be, no matter how closely inspection is carried and consideration of elements used in construction, catastrophes must and will occur unless some means can be applied to correct the employes' mental aberrant condition. A close consideration of special cause leading to railway accidents, establish the truth that from 15 to 20 per cent. of accidents are due to what executives call "negligence," and from 17 to 20 per cent. were unexplained.

It is to be understood that out of this 27 or 40 per cent. of accidents above mentioned are the cause of the most serious and destructive catastrophes occurring upon the railway. Again, out of this 37 or 40 per cent. mental aberration, in our opinion, is the most powerful and constantly acting factor. The real worth of various mechanical safety appliances is hard to determine, since they are as frequently overrated as underrated. While a combination of discipline, intelligence and perfection of mechanical detail must be at all times a powerful barrier to the occurrence of accidents still, just so long as railways and other industrial pursuits permit overwork, and are unmindful of the true, physical and mental condition of the employe, just so long will the worst form of catastrophe occur.

If the writer can direct or cause more thought and study to be given to conditions or causes leading to transient mental aberration occurring to employes in various industrial pursuits, he will consider that he has done something commendable. If numbers and gravity in extent of personal injuries are worthy of consideration, certain it is that no subject in medicine calls for more earnest and constant endeavor than that which looks to a lessening of personal injuries in general on railways and other industrial pursuits.

No element in all operative causes in the production of personal injuries is as important as the study and interpretation of conditions which may or are likely to lead to transient mental aberrations, having for their basis such states called absent-mindedness, transient unconsciousness of immediate surroundings. It is equally as important to study the conditions which lead to wandering and unfixed attention, since this leads to a loss of a sense of duty necessary in the normal operation of pursuits where mechanical power must be used and which should be properly guided and governed.

No endeavor at this time will be made to give the complete report from which these statistics are taken, as it would occupy too much space and not add materially to the value of this article. A brief sketch of the headings of the report will serve to indicate its scope.

First. Classes of the injured, which include accidents to employes,

accidents to outsiders, namely, citizens and trespassers, finally accidents to passengers.

The second heading of the report gives the various occupations of the injured, and show that 163 different occupations were held by the injured.

The third heading indicates the manner of injury occurring to employes, citizens, trespassers, and to passengers. Under this heading 167 forms of accidents are indicated.

The fourth heading indicates character of injury sustained with reference especially to the parts of the human economy involved. Thirty-five different parts of the body received lacerations; twenty-eight parts of the economy sustained abrasions, contusions affected twenty-six different parts, while twenty-eight different parts of the body sustained incised wounds; punctured wounds affected twenty-two different parts; gunshot injuries twenty-nine different parts; injuries to eye and ear thirty-two different parts; dislocations affected thirty-three different joints, while amputations were performed upon nine different portions of the extremities. Crushing injuries affected eighteen; burns and scalds, twenty-five; under sprains, forty-eight different muscles and joints were affected; fifty-five different fractures, and 73 general injuries.

The fifth heading in the report indicates the place of injury. The sixth, age of the injured individual. The seventh, nationality. The eighth, death record, etc.

The Number of Railway Injuries Tabulated by the Writer—General Character of Injuries.—According to tabulated list of railway injuries accumulated by the writer, during the space of twenty-eight years, the following will indicate the number of employes, citizens and trespassers, and passengers, injured. There are 82,361 injuries; 73,539, with 1,585 fatalities, occurred to employes; 3,293 injuries occurred to passengers, with 159 fatalities; 5,529 injuries to citizens and trespassers, with 1,379 fatalities. The following table indicates the character of injury:

	Not Fatal.			Fatal.			Total.	
	Emp.	Cit.	Pass.	Emp.	Cit.	Pass.	Emp.	All.
Abrasions	1338	98	94	....	....	....	1338	1530
Amputations	759	212	22	65	23	3	824	1084
Burns	2073	24	24	40	....	2	2113	2163
Concussions	202	71	43	30	....	8	232	354
Contusions	23645	1546	1573	36	3	1	23681	26804
Crushes	5426	378	100	112	31	8	5598	6055
Dislocations	905	39	39	3	....	....	908	986
Eye and Ear	3488	17	6	....	....	....	3488	3511
Simple fracture	4281	541	62	92	26	3	4373	5005
Compound fracture	544	37	12	54	6	....	598	653
Gunshot	112	13	10	12	4	....	124	151
Incised wound	1439	29	34	2	....	....	1441	1504
Lacerations	13614	914	661	34	62	....	13648	15285
Punctured wounds	1224	16	8	1	....	....	1225	1249
Sprains	11517	212	431	....	....	....	11517	12160
General	1387	3	15	1104	1224	134	2491	3867
Total	71954	4150	3134	1585	1379	159	73539	82361

Not fatal	79238
Fatal	3123
Total	82361

Under the head of injuries to "citizens" and "trespassers," it must be noted that two classes of persons are here considered. The "citizen" is generally injured by the train frightening the horses which the "citizen" may be driving, or when the "citizen" attempts to cross the railway tracks, and is run down by train, car or locomotive. The "trespasser" is one who courts injury by going on to the railway company's right of way, attempts to cross between the cars, or gets on railway company's trains without permission and with no desire to pay for passage; in common parlance, attempt to beat their way. Again, gets on track in way of trains, frequently when drunk, or sleeps on track. The "trespasser," as a general thing, is of the tramp species. One of the most noted points in the above list is the great difference in the mortality between the "citizen" or "trespasser," and other classes injured. It will be noted that out of 5,529 injuries to this class, there were 1,379 fatalities, almost one out of every three injuries were fatal. This arises from the fact of the great danger in which they place themselves, thus getting on track in front of trains and engines, jumping on and off trains in motion, and frequently thrown off moving trains by company's employes.

Manner of Injury Occurring to Citizens and Trespassers.—It has been already stated that the causes of the extreme mortality occurring in injuries to citizens and trespassers arises from the extremely dangerous positions in which they are placed, as well as their mental condition, since it is established that many of their injuries arise in consequence of these persons going on the company's track or right of way when drunk, or in mental moods courting destruction. The different headings of the manner of injury are self-explanatory. Injuries to "citizens" and "trespassers" occurred in 76 different manners. Horses frightened and running away, injuring drivers, 41, with 1 death; walking on track, 630, with 256 deaths; crossing between cars, 331, with 23 deaths; crossing tracks, 153, with 37 deaths; self-destruction 14, with 12 deaths; asleep and sitting on track 152, with 59 deaths; found on track 152, with 137 deaths; injured on right of way 79, with 9 deaths; injured on trains 123, with 6 deaths; falling from moving trains, 211, with 35 deaths; falling from trains 157, with 29 deaths; struck by hand cars, 120, with 52 deaths; struck by passing trains, 1,049, with 299 deaths; struck by switch stands 33, with 7 deaths; run over by trains 115, with 39 deaths; collisions 139, with 31 deaths; derailment of trains 203, with 25 deaths; coupling and uncoupling 36, with 2 deaths; jumping on standing trains 35, with 1 death; jumping on moving trains 446, with 62 deaths; jumping off of moving trains

487, with 62 deaths; jumping on trains 66, with 7 deaths; jumping off of trains 47, with 10 deaths; unknown 407, with 150 deaths.

Manner of Injuries Occurring to Passengers.—According to list tabulated 3,293 passengers were injured, and there were fifty-eight different ways in which they were injured. It can be said with truth that the passenger, like the rest of mankind, is more or less inclined to expose himself to danger where no necessity exists. His curiosity leads him into dangerous places, and injury is the result. He is constantly prone to exercise poor judgment, thus courting injury, and death as well. At times he assumes duties of railway employes and thus injures himself. The following are some of the ways in which the passenger is injured: Sudden jerking of trains caused 115 injuries, with 1 fatality; while alighting from trains 28 injuries; walking on track 23 injuries, with 3 fatalities; car door, window, chair seat accidents, 158 injuries; struck by flying missiles 47 injuries; struck by switch stand, mail cranes, etc., 84 injuries, with 3 deaths; crossing between cars 29 injuries, with two deaths; falling from moving trains, 140 injuries, 19 deaths; falling from standing trains 119, with 2 deaths; injured on train, 105; jumping from moving trains 115 injuries, with 9 deaths; jumping on moving trains 165, with 16 deaths; jumping on and off standing trains 59 injuries, with 3 deaths; collisions caused 949 injuries, and 54 deaths; derailments 891 injuries, with 13 deaths; self-destruction 2, with 2 deaths; climbing down ladder of cars, coupling and uncoupling cars, 5 injuries; crossing track from car to car and crossing track caused 37 accidents, with 3 deaths. Collisions only caused 949 injuries, leaving 2,402 injuries to be caused by derailments and other ways.

Character of Vocation Among Railway Employes, to Whom Injuries Most Frequently Occur, Along With Manner of Injury.—The railway employs in its service almost every vocation, and in the list tabulated there are no less than 128 different positions occupied by the employe. Space will only allow the writer to mention the different classes most frequently injured. There were 10,150 injuries to brakemen, 406 resulted fatally; 1,077 boilermakers, with 2 fatalities; 1,811 B. & B. carpenters, with 15 fatalities; 1,715 carpenters, car carpenters, carpenter helpers and carpenter apprentices, with 2 fatalities; 2,936 car repairers, with 22 fatalities; conductors were injured to the number of 1,379, with 33 fatalities; 2,501 engineers injured, with 97 fatalities; 5,151 firemen injured, with 122 fatalities; 1,982 extra gang laborers, with 29 fatalities; 2,952 laborers, with 24 fatalities; 4,920 machinists, machinists helpers and apprentices injured, with 2 fatalities; 9,530 section laborers, with 166 fatalities; 1,214 section foremen, with 14 fatalities; 2,337 switchmen injured, with 71 fatalities; 1,146 shop laborers, with 5 fatalities; 3,197 yard laborers, with 60 fatalities; 990 coal heavers, 6 fatalities; 564 freight handlers, with 2 fatalities; 371 hostler helpers, 2 fatalities; 522 train porters, 7

fatalities; 336 painters and helpers injured, 1 fatally; 420 round house employes, with 3 fatalities; 434 truck repairers, 2 fatalities; 437 truckers, 1 fatally; 235 telegraph linemen, 2 fatalities; 419 watchmen, 14 fatalities; 991 wipers, 8 fatalities.

It will be seen that 2,501 locomotive engineers were injured, as compared with 5,151 locomotive firemen. Since they both occupy the engine cab it would be a pertinent inquiry why more firemen were injured than engineers. As a rule the engineer sticks to his seat box; the firemen pass backward and forward between cab and engine, thus making use of unstable footing and placing himself in the power of gravity. By the manipulation of the coal the firemen frequently have their fingers and hands damaged. It is quite uniform to find more than double the number of firemen injured, but usually the engineers' injuries are of a more fatal character than the firemen's.

As to the manner of injury, we find that in coupling and uncoupling cars, 5,452 injuries occurred, with 155 fatalities; 1,266 were injured in collisions, with 80 fatalities. Derailed trains caused 1,357 injuries, and 77 fatalities; backing and parting of trains, crossing from car to car, 427 injuries, 8 fatalities; repairing machinery caused 15,990 injuries, 49 fatalities; cleaning cars, engine guards, 445; handling coal and company material, 12,438, with 7 fatalities; falling from moving trains, standing trains, telegraph poles, scaffolds, trestles, etc., 3,903 with 205 fatalities; jumping from moving trains, cars, trestles, etc., jumping on moving trains, etc., 4,950 injuries, with 89 fatalities; struck by trains, cars, missiles, run over by trains, 7,568 injuries, with 229 fatalities. Minor accidents numbered 6,794, with 43 fatalities; stepping on rocks, boards, etc., 1,025; handling and dropping miscellaneous articles, 731; explosions of torpedoes, firearms, etc., 562 injuries, 12 fatal; loading and unloading cars, 584; sudden stoppage of cars, 227 injured, 1 fatal; crossing between cars, 279 injured, 18 fatalities; personal conflict, 302 injured, 1 death; heavy lifting, 813. Among the unusual accidents, struck by lightning, 10; shot by train robbers, 4; cyclone injuries, 9; explosion of engine, 37, 16 fatal; self destruction, 12, with 5 deaths; not specified, 174, with 9 deaths. Unknown, 483, with 67 deaths; ejecting persons from cars, 20; walking on track, 345 injuries, 53 deaths.

Classification of the Causative Factors of Railway and Allied Injuries.—If there has been any endeavor upon the part of authors to classify the causative factors of railway and allied injuries, the writer has been unable to discover the same.

There can be no doubt that system is needed in this direction, since a proper classification of these causative factors and their correct technical naming, may be the means of establishing a quick comprehension of the forces which have been engaged in producing railway and allied injuries.

It must be understood in the beginning that railway and allied injuries

arise as the result of the action and force resident in kinetic energy, or energy in motion, wherein the injured person or persons are exposed to the immediate effect through some interference with or abnormal action of kinetic energy engendered either in the person or persons injured, or agent of infliction. Hence, a study of the causative factors of railway and allied injuries is nothing more nor less than a study of kinematics, that division of mechanics which treats of the movement of bodies without reference to the force producing the movements. A railway train, locomotive, or trolley car, etc., etc., in motion, is in kinetic energy, and persons conveyed by this railway train, trolley car, etc., etc., are in kinesic state or surroundings, just so long as mechanical agents on railway trains, locomotives, trolley cars, etc., are controlled normally, and no abnormal condition disintegrates the kinetic energy of such agents, accidents are not manifest, but any abnormal condition arising which interferes with or disintegrates the kinetic energy existing in these agents results in a transference of the energy or force upon the conveyed person or persons.

Any attempted classification of the causative factors of railway and allied injuries must of necessity have special reference to the kinesic states assumed by the injured person or persons, since the mental operations of the injured person or persons are more or less constantly modifying or creating factors in the production of railway and allied injuries. Hence, the classification of the causative factors of railway and allied injuries offered by the writer is based upon the character of kinetic energy manifest at the time the person or persons are injured, with especial reference to the kinesic condition or state of the injured person or persons at time of injury, and not upon the kinesic state of inflicting agent.

Railway and allied injuries will be classified under four different headings.

1. "Accidents arising from kinetic-kinesic states."
2. "Accidents arising from bi-kinesic states."
3. "Accidents arising from mono-kinesic states."
4. "Accidents arising from un-kinesic states."

First, the kinetic-kinesic accident is where the mechanical agent, railway train, locomotive, trolley car, etc., etc., is primarily in kinetic energy, or energy in motion, and the injured individual is under kinesic sway, that is to say, being conveyed by the mechanical agent, such as railway train, trolley car, etc., as shown in collisions, derailments, parting of trains, backing up of trains, cars, etc., jerking of trains, etc., switching of trains; these accidents are all of a vehicular nature. The incident disintegration or interference with the kinetic energy in railway trains, etc., transfers part of the force in this kinetic train, etc., to the person or persons conveyed by them, thus creating the injury. These forms of accident are amongst the most fruitful in death, and of almost all forms of injury

they are the most constantly productive in begetting traumatic psychoneuroses, owing to the fact of suddenness of occurrence, and the more or less constant engendering of horrifying circumstances.

According to the tabulated table of the writer, out of 82,361 injuries, there were 6,407 accidents of this character, with 385 deaths.

Second. The bi-kinesic accident. In the bi-kinesic accident both mechanical agent, train, trolley cars, etc., and the injured, are successively in kinesic states. The mechanical agent being primarily in kinetic energy when gravity imparts additional kinetic energy to the individual in process of injury. Thus in falling off of moving trains, etc., jumping on and off moving trains, etc., being struck while on moving trains, by bridges, trestles, switch stands, mail cranes, posts, etc.

Bi-kinesic accidents (out of 82,361 injuries tabulated by the writer) number 4,615, with 444 deaths. In proportion to the number of injured are the most uniformly fatal, owing to the fact that there is almost a reduplication of the primary energy or force when the injury terminates. Falling off of moving trains is the most fatal form of accident occurring to the passenger.

Third. The Mono-kinesic. The mono-kinesic form of accident is where the injured individual from cause goes into kinetic energy along with the incident combined action of gravity, caused by sudden attacks of syncope, insecure footing, failure of grasp, etc., as in falling off of standing trains, etc., falling off of bridges, trestles, telegraph poles, falling into pits and cattle guards, or falling from unstable footing, such as icy ground, etc. This is the least fatal of all accidents, as a general thing, occurring upon railways. Out of 82,361 accidents, the mono-kinesic injuries numbered 3,768, with only 49 fatalities.

Fourth. The Un-kinesic. The un-kinesic accident is where the injured individual is in a more or less quiescent state while the inflicting agent is in kinetic energy. This form of accident includes repairing of machinery, cars, engines, bridges and buildings, handling company material, such as coal, ties, lumber, etc., coupling and uncoupling cars, etc., dropping articles on different parts of the body; struck by agents in kinetic energy such as cars, trains, etc., explosion of boilers, torpedoes, grind stones, shot by train robbers, tramps and persons unknown, struck by lightning, injured in cyclones, etc. The un-kinesic accidents out of 82,361 tabulated by the writer, numbered 67,573 injuries, with 2,248 fatalities.

Again, it is well to note at this time the peculiarities of injuries occurring under these several headings. Under the heading of "Accidents arising from kinetic-kinesic states," it was formerly supposed by earlier writers upon "Railway Spine," "Traumatic Neurosis," etc., that collisions were the great source of these troubles, but as time has come and gone this has not been proven to have been the case. Almost every form

of wound can be produced in the kinetic-kinesic accident: the contused, lacerated, punctured, incised wound, along with burns and scalds.

That their occurrence is a fruitful field for the production of the psycho-neuroses is constantly demonstrated, still, owing to the application of mechanical safety devices upon trains, cars, etc., we find a constant lessening of troubles in this direction. According to data accumulated by the writer one employe to 6,100 injuries, has something like traumatic psycho-neuroses, while for ever 111 of passengers injured, there is one case of psycho-neuroses.

From this data the unbiased investigator is forced to the conclusion that the traumatic psycho-neuroses occurring in railway accidents is largely a matter of age, predisposition, faulty environment, and suggestive treatment. The mere fact that a person has been in a collision does not indicate that of necessity such a person must have received either severe psychic or a corporal injury, since collision after collision occurs where the occupants of the rear cars are not sufficiently disturbed as to be made aware that a collision has occurred. Hence a close and correct history is necessary in order that it may be established that acting forces have been sufficiently severe to produce injury.

Regarding the bi-kinesic accident, it can be said that if there is any form of accident peculiar to railways it is this form. Falling off of trains in motion depend upon their severity as to the rate the train or mechanical agent is moving. Naturally a person falling off of a train moving at the rate of fifty miles an hour would receive a more severe injury, all things being equal, than when a train was moving at five or ten miles an hour. Again, the higher a person falls influences the severity of the injury. An employe falling from the top of a box car would receive a more severe injury than when falling from a slighter distance. It is an established fact that fractures of the inferior extremity received under these conditions are invariably very severe, especially when the bone protrudes through the skin, and at times penetrating ground or platform. So great is the local shock to the parts that a condition allied to trophic disturbance occurs, interfering with prompt healing, and often leading to amputation of parts. Falling off of and jumping off and on of fast moving trains are prone to create compression fractures, not only at prominent joints, but in vertical column and skull. Various joints exposed to injury from this source are contused in the most severe degree, and it is not infrequent to have the ankle, knee and hip joints irreparably injured.

There is no doubt that kinesic influences have decided effect upon men when brought under their action. Man's mentality when upon moving trains is affected in a more or less positive manner. At first there is mental exhilaration followed by soothing and placating elements, and at times the motion of a fast running train gives rise to sudden and over-mastering suggestions and impulses. Jumping on and off, or falling off of fast

moving trains are no doubt at times due to neurasthenic impulses. Again, it is established that kinesic influences are prone to produce in the engineer, motorman, etc., with long established runs, a tendency to absent-mindedness, conditions where at times these operatives under the placating influence of kinesis, lose for a more or less short interval of time their attention to the immediate calls of their vocation by inattention and by short periods of unconsciousness, by permitting their mind to go wool-gathering, court accidents, such as collisions, derailments, and draw-bridge accidents. Such peculiar mental conditions in railway employes like heterophomy, auto-hypnosis, mental absent-mindedness, no doubt explain many railway accidents placed under the head of cause "unknown."

While admitting that there are faults with the classification, yet at the same time it can be seen that the four divisions of this classification are reasonably lucid and plain. The kinetic-kinesic accident suggests at once the particular character of the accident, and brings to the mind a proximate idea of the force involved in its production.

The bi-kinesic accident certainly suggests in a most condensed manner the play of the forces engaged in the production of this form of accident, while the mono-kinesic accident suggests the by-play and acting power of gravity under psychic and physical conditions. Probably just fault can be found with the nomenclature of un-kinesic accidents. Yet the writer believes notwithstanding the great number of accidents which must be classified under this heading, the classification as a whole is reasonably definite.

It is just and reasonable to presume since in this country alone there are 1,664,000 persons, more or less, seriously injured and killed annually, and that there is approximately 4,800,000 minor wounds inflicted, some effort should be made to systematize and classify in whatever direction possible this important and constantly broadening field of traumatic surgery. If there be virtue in any specialty, it must arise from a consideration and elaboration of particular, peculiar and extraordinary elements contained in this specialty, the application of special manners, functions and usages engendered by increased information and study of principles and minutiae.

Hence, any one familiar with railway and allied injuries must be forced to the conclusion that owing to the many particular, peculiar and extraordinary features they possess, that their special study is demanded and that they are legitimately a special study, which, when properly applied, will redound in associate benefit.

The writer hopes that no matter how imperfect the classification he now suggests may be, and that if not accepted it may lead to a better and broader consideration than has been given to this subject heretofore.

SYMPOSIUM ON HEAD INJURIES.*

INTRODUCTORY REMARKS: THE SCOPE AND IMPORTANCE OF THE SUBJECT.

BY FRANK R. FRY, A. M., M. D., of St. Louis.

It has been suggested to me to make some general remarks this evening on the subject of cranial injuries. I fear they will be very general and I promise they shall be brief. It does not require a great imaginative capacity to picture the genesis of the various cranial operations: the early, crude efforts to repair the cranial portion of the skull after injuries and to relieve the injured contents; to remove from the cranial cavity septic conditions and destructive growths and to overcome by operative procedure internal pressure. The developments which have occurred along each of these lines forms a history in itself. I shall not attempt to even briefly epitomize this. I shall be fortunate if by a few allusions to the same I may indicate our present status and how it has been attained. Especially on a joint occasion of this kind it is interesting and perhaps not unprofitable to trace the influences which have led to certain epochs in this great work, the respective contributions thereto by the surgeon and by the type of internist latterly known as the neurologist.

With the advent of asepticism came the renaissance of cranial surgery. Practically all the important work dates therefrom. Sheltered by aseptic possibilities the surgeon became as bold in his cranial work as he was elsewhere and he has at times kept the neurologist very busy in attempting to keep pace with him. Perforce of circumstances the role of the neurologist has often had to be that of censor, while he contended for certain conservative principles. For example, in cases of cerebral compression after injury the neurologist has shown the disadvantages of too hasty operation under certain conditions, and the advantages of undertaking carefully to formulate the indications which shall guide us. And again, when the surgeon was becoming too prolific in operations for epilepsy and neurosis of traumatic origin the neurologist attempted to assist him in establishing a dignified basis for this work. The important outcome of this nagging, if we may use so severe a word, has been to direct the surgeon to a study of the neurological side of his work. The neurologist is not in any sense envious of the surgeon's greater share in the work of cranial surgery. His only contention has been for a full and proper recognition on the part of the surgeon of physiological and clinical principles which the internist is willing to submit to his consideration. Neurologists are very proud of some of our surgeon-neurologists and point to them as exemplars to those who would essay cranial surgery. Sir Victor Horsley, by his animal experiments and close clinical study of diagnostic points, has attracted the

* Read before the St. Louis Medical Society, March 24, 1906.

attention of the neurological world as much as he has by his remarkable surgery. Dr. Harvey Cushing has made the best contribution to the subject of cerebral compression that has ever appeared; and also the best study of the sensory distribution of the fifth nerve. The leading cranial surgeons everywhere today are neurologists in some certain senses of the word.

Modern surgery is entitled to much praise for the technique and ingenuity expressed in its cranial work. Speed and precision gained by every care to detail have improved statistics from year to year. Sixty-five per cent of recoveries in operations on traumatic brain abscess speaks for itself. It is a stimulating figure. If it were possible to tell as fully the history of operated traumatic hemorrhage I believe it would show a proportionate gain.

The question of operation for the remote effects of trauma to the brain is much oftener a neurological than a surgical one. And it is here that the internist has labored most conscientiously to forestall unwarrantable and mischievous surgery and at the same time to establish a scientific, or at least a rational basis of procedure; or, as I have said before, a dignified basis, by which I mean a position in this matter that shall be different from that of the tyro or charlatan who stand ready to trephine on any pretext. The problems of this question are many and perplexing and in discussing them we are often misunderstood. However, the fact is gaining wider recognition that every instance of the kind should have a neurological sifting in the strictest sense of the word; and this after all is our main contention. I hope that a later speaker this evening will have something to say under this head.

The scope of this work grows with the improvement of surgical and neurological methods at a rate that keeps it before us as one of the great fields of scientific endeavor. Its practical importance has become a matter of daily demonstration in all great centres of surgical activity.

INDICATIONS FOR IMMEDIATE OPERATION IN HEAD INJURIES.

By M. A. BLISS, M. D., of St. Louis.

Immediate operation may be defined as a procedure for the relief of pressure and to stop bleeding, or to accomplish drainage, and done within the first few days following the receipt of the injury.

The function of the neurologist is to aid the surgeon in differentiating early between shock and brain injury, and whether hemorrhage has occurred and is continuing, or edema is present, or the symptoms due to so-called concussion or commotion and especially to localize injury.

It may save time to say that in the opinion of some of the best posted

surgeons of my acquaintance and in my own, that an injury, sufficient to produce partial or complete unconsciousness for a short period of time and subsequent dizziness, head pain, and other evidences ascribed to concussion or commotion is accompanied by lesions. In fact, cases of so-called concussion, after a free interval, are sometimes found to have received quite extensive injuries producing meningeal hemorrhage, etc.

It is true that cases of so-called concussion do not frequently come to autopsy and we are not in position to be dogmatic on this point, but where concussion has been diagnosed and the other injuries received elsewhere than the head have proved fatal a revision of diagnosis has been found necessary. The pathology seems to be largely a matter of degree, the disturbances not due to mere violent vibration of the brain cells, but to altered circulation.

The relatively free intervals occurring between the receipt of an injury and the occurrence of symptoms may be several hours and the recipient of the injury may have walked a number of blocks and perhaps declared himself not much hurt. Upon taking food or water into the stomach vomiting may occur, then drowsiness, gradually deepening into a stupor, from which the patient may be with more or less difficulty aroused. Shock would be excluded and hemorrhage almost certain.

A careful search for localizing symptoms having failed, hourly observations of the patient should be made, progressive symptoms indicating operation at site of injury as the promising point for discovery of clots. It has been recommended by Cushing that an opening be made in the temporal region intermuscularly for the relief of pressure where the site of injury is not ascertained and no localizing signs are present. We are frequently unable to say definitely that pressure due to edema or to hemorrhage, and if the latter whether epidural or subdural.

The future validity of the brain may depend on the prompt recognition of localizing symptoms which I will not describe, but I would especially emphasize the point that all head injuries should be carefully watched not only for such definite signs, but for the general signs including clouding of consciousness, deepening as time goes on, spasmodic movements, a change in reaction or difference in size of the pupils, motor restlessness, aphasia of any variety or degree, vomiting, slow pulse, or disordered breathing.

In event of a compound fracture, especially if the wound has been contaminated by street dirt, infection may take place and a traumatic leptomeningitis, with headache, fever, restlessness and clouding of consciousness. If not promptly relieved the added symptoms of abscess may occur, vomiting changed discs, slow pulse, deepening coma. Free opening, as thorough evacuation as possible, establishment of perfect drainage are indicated.

To summarize. Head injuries cannot be estimated as to severity immediately after their occurrence, apparently trivial external injuries being sometimes followed by symptoms of the gravest character.

Shock may as a rule be excluded if a free interval of appreciable duration occurs.

General symptoms, such as disturbances of consciousness, of pulse rate and breathing, vomiting, motor restlessness, spasmodic movements, etc., occurring after a free interval usually indicate hemorrhage even in the absence of localizing signs.

Lumbar puncture may be of service in diagnosis of hemorrhage.

Traumatic meningitis demands prompt and thorough drainage.

All head injuries of any severity demand constant watchfulness on the part of both neurologist and surgeon.

RELATION OF LATE EPILEPSY TO HEAD INJURIES.

BY SIDNEY I. SCHWAB, M. D., of St. Louis.

That trauma of the head is an important ætiological factor in epilepsy has long been recognized. Echevirra's statistics show sixty-three out of seven hundred and eighty-three cases. Spratling's more recent series show eight-eight out of 1,323 and among 814 male epileptics a traumatic history was obtained in seventy as contrasted with eighteen out of 509 female epileptics.

The special point that this paper will attempt to bring out is the occurrence of epilepsy long after the initial trauma has taken place and when all traces of the original injury have disappeared. For the correct interpretation of cases belonging to this category all other causes which might of themselves produce epilepsy must be excluded, such as syphilis, alcoholism, heredity, etc. Even then there will remain a certain number of unexplained cases in which the existence of the causal relation of the trauma and the epilepsy is not apparent. Leaving the doubtful cases aside there is left a certain number of instances which develop epilepsy late, but in which the trauma forms the most readily acceptable ætiological factor. Such cases fall within the scope of these remarks and such cases frequently have a surgical interest.

How large a proportion of all cases of epilepsy might belong in this class is an open question, as no large series of cases has been studied with this point in view. Judging from the experience in private practice and clinical work and likewise from that of some of my colleagues the number must be sufficiently large to merit some attention.

Trauma and its relation to later developing epilepsy may be set down in this way:

(1) Epilepsy resulting immediately after or concurrently with a

trauma to the head as a direct result of the concussion following the blow without any well defined gross anatomical lesion.

(2) Epilepsy developing some time after the initial trauma without any well defined gross anatomical lesion of the brain.

(3) Epilepsy developing immediately with or after or later in the presence of a well defined anatomical gross lesion. Its type, as in the other cases, may be Jacksonian, partial or complete.

Convulsions occurring at the time of the head injury considered broadly as a concussion symptom are not necessarily true epilepsy. Such traumatic convulsions in certain sorts of brains appear to predispose to a later developing epilepsy irrespective of the localization of the original trauma.

If the lesion so occasioned is gross and if it remains as a source of cortical irritation, a well-defined epilepsy may afterwards develop irrespective of the kind of brain which is the subject of the injury.

A question of great interest and importance might be touched upon at this point. Epilepsy may be considered in the nature of a natural phenomenon which takes place in any brain under given conditions, or it may be thought that only certain kinds of brain will act epileptically, so to speak, under the same given conditions. The solution of this problem must for the present remain open, but at least this aspect of the question deserves some consideration in the final decision of operative interference. If we, for example, could in a given case determine whether the brain injured would react epileptically or not we might feel that the less chance taken with the latter sort of brain the more chance for the patient avoiding a subsequent epilepsy. In consideration of these views, head traumata, which are accompanied by convulsions, are to be looked upon as predisposing to a later epilepsy; especially is this so when the traumata occasion some definite injury to the brain, evidence of which is present.

In all cases of serious head injury the possibility of epilepsy should be carefully considered and should become an important factor in the final decision as to whether operative interference is to be resorted to or not. As a prophylactic measure in epilepsy this fact has not been given sufficient prominence.

From the neurological point of view and from the standpoint of this paper, operative interference is justified when there is evidence of a definite gross injury to the brain, which is within the reach of an operation. This interference is made more imperative if the trauma has caused convulsions in the first place as a part of the clinical picture. These convulsions are, however, not to be looked upon as epileptic in themselves.

In respect to the question of surgical interference in cases in which no evidence of gross lesion to the brain exists, the decision must rest on other factors of the case. There is further to be considered the advisabil-

ity of opening the skull in these cases, especially with the view of relieving the increase in pressure which even an injury that is not demonstrable might produce. This question must be regarded as still open. There does not seem to be much doubt but that operation at the time of injury in the proper cases would save a certain proportion from developing epilepsy at a later period.

The suggestion is here advanced and its need emphasized that in the presence of every serious head injury the neurologist, if one is present, the surgeon if he is not, should make accurate notes as to the seat and character of the lesion, the localizing data, if any are present, and any other clinical points, so that if epilepsy later develops and surgical interference is advised, the seat of the original injury may be accurately distinguished from the scars of the scalp, which may be the result of injuries from falls due to the epilepsy.

HEAD TRAUMA AND PSYCHOSES.

BY GIVEN CAMPBELL, JR., M. D., of St. Louis, Mo.

In this consideration of the relationship of trauma to mental disturbance I shall limit myself to the effects of head injuries damaging the brain and its membranes. Psychical disturbances secondary to injuries or surgical operations on distant parts of the body are not here discussed.

In so far as the brain is the organ of the mind, cerebral injury must lead to mental impairment, but in the majority of cases the immediate disturbance of consciousness is transient, and it is only very occasionally that mental disturbances sufficiently permanent and severe to be classed as traumatic insanity follow an injury to the head.

Among the mental disturbances accompanying head injuries, and not constituting insanity, may be classed the aphasias, the epilepsies, neurasthenoid states, increased irritability and various kinds of memory loss. Especially interesting and not very infrequent is retrograde amnesia; a condition in which memory is blotted out not only of events occurring at the time of the injury, but also of everything for several hours, sometimes for many days, *before* the patient was hurt. Antegrade amnesia more commonly occurs, in which memory is lost for events following the injury. In these cases recollection often gradually takes place, as time brings complete recovery, the patient often remembering the events longest after the injury first, then gradually those nearer in time until often the incidents of the accident itself are recalled.

Trauma may produce mental disturbance in either of two ways. First, where the mental trouble is due to the destruction or altered function of certain brain areas involved directly in the injury, and secondly, where

the injury serves merely as the exciting cause and either initiates an insanity in an individual predisposed thereto by heredity, alcohol, syphilis or some other factor, or brings into prominence insanity previously latent and perhaps undiscovered. In many cases the first appearance of mental symptoms in paresis dates from some shock, whether it be a head injury or some purely mental disturbance. This will illustrate how trauma often merely hastens the evolution of a mental disease and brings the striking symptoms into such prominence that those about the patient are apt to attribute his whole condition to the injury, where his physician knows he previously presented the physical signs showing that such mental changes were certain sooner or later to break forth and that the injury merely hastened that which without it was sure to ultimately occur.

Among the mental conditions of which trauma is the direct cause we have the coma due to contusion with its coincident swelling of the bruised tissues of the brain. This edema or hemorrhagic infiltration is often considerable, and within the cranial cavity, which resembles a tightly closed box, its pressure produces many serious symptoms previously vaguely attributed to concussion. It is due to the better relief of this pressure that severe brain injuries with extensive fracture pursue a more favorable course than those in which the displacement of bone is slight. When the coma is slow to resolve it may lapse into a delirium with or without an alcoholic basis and this delirium may be protracted and merge into a psychosis much like that described by Korsakoff as occurring with alcoholic neuritis.

Besides the mental disturbances springing directly from the contusion of brain tissue, we have the later effects in which scar formation following the injuries plays a part and which are caused in part by the distinctly diffuse commotions in which, as Adolph Meyer expresses it, the *general* reaction, and the psychic elements preponderate, including the remote reactive results of exaggerations of vasomotor and emotional responsiveness. These effects vary from a mere irritability of temper with increased susceptibility to toxines, such as alcohol and grippe, up to complete dementia. To the psychical picture is often added the more focal effects of localized brain injury, such as the aphasias epilepsies and paralysis.

The symptoms above described if due to trauma should begin to manifest themselves within a reasonable time after the injury and in most cases merely constitute the post traumatic mental condition, which is common, while post traumatic insanity, due solely to the injury, is rare. This above described mental condition in most cases greatly improves as time goes by, but in certain cases a slow progressive disintegration takes place around the original areas of injury, the patient's character changes, local symptoms gradually supervene and a deterioration of

mentality often both psychically and in physical signs resembling paresis supervenes.

As to what brain areas are most apt when injured to produce insanity authorities are divided. It seems reasonably sure that a lesion small in size cannot do so, no matter where located. In other words, there is no one center for insanity. Phelps of New York, however, through an investigation of pistol wounds of the brain, claims that fairly limited lesions of the left pre-frontal region can alone produce insanity. While English, in the Hunterian lecture entitled, "The After Effects of Head Injuries on Mentality," delivered February, 1904, before the Royal College of Surgeons of London, concluded that, if rather diffuse, injuries to any part of the head can produce insanity. He summed up his results in the following words:

1. While some degree of mental impairment is comparatively common after injuries to the head, the changes are seldom sufficiently marked to be included under the head of insanity.

2. Insanity may result from injury to any part of the head.

3. Traumatism leads to insanity in two ways: 1st. Direct insanity, due to actual injury to the brain or its membranes apart from heredity or other predisposing causes. 2nd. Indirect insanity, that is to say any form of insanity occurring as a result of lowered resistance of the brain due to injury in patients with a predisposition to insanity, hereditary or otherwise.

4. Every variety of mental change may be produced by traumatism, although some are commoner than others.

5. It is at present undetermined whether injury to the prefrontal region is more likely to be followed by mental disturbance than injury to other parts of the brain.

He gives 10 per cent. of head injuries as followed by mental symptoms and 4 per cent. as followed by insanity.

The most characteristic mental changes following brain trauma are irritability, emotional instability, increased susceptibility to alcohol, forgetfulness and lack of ability to do mental work.

In considering the part played by trauma in the production of paresis, the chief question will, of course, be whether trauma can produce paresis directly. That is: can trauma be the sole cause of paresis in an individual not predisposed thereto? An answer to that question depends on whether one believes or does not believe that every case of true paresis must have been preceded by a syphilitic infection; a question about which there is and always will be dispute. Evidence is constantly accumulating which in my opinion hardly admits of other conclusion than that paresis and tabes can occur only after the individual *has had* syphilis. The words *has had* are used advisedly for paresis seems to come after the syphilis rather than to be a part of it, and is not generally thought to be bettered

by anti-syphilitic treatment. The extent to which syphilis is concealed and denied, the readiness with which its slighter manifestations occurring many years before may be forgotten (for it is after benign syphilis that paresis is apt to supervene) the frequency with which its very existence is undreamed of by the patient and the fact that its acknowledgment must often come from a patient already too demented by the paresis to allow credence to his statements makes it readily understood that a history of syphilis cannot be obtained in all cases. Statistics as to the number of cases in which syphilis is known to exist, vary from 11 per cent. to 94 per cent. Most observers give as high as 60 per cent. Lange of Vienna is only able to find a history of previous syphilis in $36\frac{1}{2}$ per cent. of cases suffering from tertiary syphilitic lesions, while the percentage of syphilis in other diseases of the nervous system is given as from 16 to 24.

The experiments made by Kraft Ebing several years ago, much commented on and then quickly hushed up, owing to the doubtful justification of his procedure, have, nevertheless, much weight. It being generally known that a second syphilitic infection is very rare, if it really ever occurs, this German scientist selected eight general paralytics in whom syphilis was denied and in whom there was no reason for suspecting its existence. These eight patients he inoculated in various parts of their bodies with secretions taken from fresh chancres. In no case did any syphilitic manifestations follow, thus rendering it very probable that these paralytics in whom, save for their paresis, there was no reason to suspect syphilis, had yet suffered previously from that disease.

But while syphilis is very probably a pre-requisite of paresis, syphilis alone is not a cause. Kraft Ebing well summarized our knowledge in giving as the cause of paresis the combination of civilization and syphilization. When to the stress of modern life and perhaps a neurotic heredity is added syphilis, the factors necessary to paresis are present. If dissipation or a head injury is added the probability of paresis is greatly enhanced. As has been said, trauma can *directly* cause a condition rather closely resembling paresis and trauma *can* and very frequently *does* hurry forward the mental symptoms of paresis and in some patients previously syphilitic trauma *may, indirectly* cause paresis. That is to say: without the head injury paresis would never have occurred.

The writer begs leave to present the following conclusions:

1st. That mental change following head injury is common, insanity rare.

2nd. That head injury *can* be a sole cause of insanity, but more commonly is a contributing cause.

3rd. That in paresis the great probability of syphilis being a pre-requisite makes it doubtful that trauma alone can be effective.

HISTORICAL.

ALEXANDER MONRO THE SECOND.*

BY M. G. SEELIG, M. D., of St. Louis.

Benjamin Ward Richardson (*The Asclepiad*, Vol. 7, 1900, p. 49) ends his account of the life of Alexander Monro primus with the sentence: "So closed the life of the first Professor of Anatomy and Surgery of one of the greatest schools of medicine the world has ever seen; a life right worthy of the beginning of that school, and worthy of its noble and splendid career, even until now." The term "School of Medicine" embraces the central thought of the formation and promulgation of new ideas, or the vigorous confirmation of old ideas rehabilitated. For us, the various schools of medicine possess historical interest from two points of view, namely, the relationship existing between the school, its predecessors and successors, and the activities of the individual members comprising the school. This interest is unquestionably intensified by the fact that since the latter part of the eighteenth and the early and middle part of the nineteenth century there have existed no bona fide schools of medicine. Broussais headed the so-called physiological school of France, Corvisart, Laennec and Louis represented the French physical diagnosis school; Skoda and Rokitansky were the representatives of the New Vienna school of pathological anatomy. Rudolph Virchow should be regarded rather as the expounder of the new and basic conception of cellular pathology than as the founder of a school.

Ever since the Renaissance the tendencies of the times have been toward the spread of knowledge. The invention of the printing press, circumnavigation of the globe, the introduction of steam power, the telegraph and innumerable other inventions have all lent their influence in this process of scattering learning, with the result that now the development of a new idea is no sooner announced than it is subjected to processes of confirmation or refutation throughout all the intellectual centers of the world. This universalization of knowledge, then, is the rational explanation of the fact that today we no longer have groups of men sharing with each other the distinction of monopolizing the exposition of new thought and generically grouped as a "school."

All this, by way of introduction to the presentation to you of an old book published in 1787 by a leader of one of the most famous (certainly *the* most famous of all Anglo-Saxon) schools of medicine. Alexander Monro secundus was the second man to hold the professorship of anatomy in the Edinburgh Anatomical School, a school developed largely by the efforts of Monro primus, with organized teaching and research as its

*Read before the St. Louis Medical History Club, May 31, 1906.

SEELIG.

A

DESCRIPTION

OF ALL THE

BURSÆ MUCOSÆ

OF THE

HUMAN BODY.

THEIR STRUCTURE EXPLAINED,
AND COMPARED WITH THAT OF THE CAPSULAR LIGAMENTS OF THE JOINTS,
AND OF THOSE SACS WHICH LINE THE CAVITIES OF THE THORAX AND ABDOMEN;

WITH REMARKS ON THE

ACCIDENTS AND DISEASES WHICH AFFECT THOSE SEVERAL SACS,

AND ON THE

OPERATIONS NECESSARY FOR THEIR CURE.

 ILLUSTRATED WITH TABLES.

BY ALEXANDER MONRO, M. D.

PROFESSOR OF PHYSIC, ANATOMY, AND SURGERY, IN THE UNIVERSITY OF EDINBURGH;
FELLOW OF THE ROYAL COLLEGE OF PHYSICIANS AND OF THE ROYAL SOCIETY OF EDINBURGH,
AND FELLOW OF THE ROYAL ACADEMY OF SURGERY OF PARIS.



EDINBURGH:

Printed for C. ELLIOT, T. KAY, and Co. No. 332, opposite Somerset-Place, Strand, London;

And for CHARLES ELLIOT, Edinburgh

M.DCC.LXXXVIII.

Title-page of Munro's book published in 1787.

aim, and perpetuated by the labors of such men as *Monro secundus* and *tertius*, John Bell, Charles Bell, John Barclay, John Gordon, John Innes, Andrew Fyfe, Alexander Walker, David Craige and William Cullen.

Alexander Monro the second was born in 1733, he was professor of anatomy in the Edinburgh school for 54 years and died in 1817 at the age of 84. Struthers, in his historical sketch of the Edinburgh Anatomical School, says that the elder Monro achieved his greatness, but that the second Monro was born great. He laudably lived through the most dangerous of successions, namely, that to a famous father, and he held his place intellectually among a coterie of truly great colleagues. He was appointed professor of anatomy at the age of 21, even before he had taken his degree or finished his studies in the university. Early in his career he manifested an inclination for medicine, and his father, from the outset, planned that his son should succeed him. After obtaining his degree, he completed his studies in London, Leyden, Berlin and Paris, thus coming in contact with William Hunter, Albinus and the great German anatomist Meckel. During his twenty-fifth year, he returned to Edinburgh and commenced his duties as Professor of Anatomy. As a lecturer he is described as being clear, earnest and impressive, possessed of a fund of medical, surgical, pathological and physiological information and of the ability to impart this information to his hearers. It is computed that during his entire professorship, his lectures were attended by 14,000 students.

Monro's early writings were controversial rather than investigative in nature, and it was not until he was fifty years of age that he began to publish the researches and investigations which have served to mark him as a great anatomist. His published works are too numerous for detailed discussion. Considering that he was a busy practitioner, indeed, the leading physician of his era, it is remarkable that he found time to extend his researches over such a wide field, embracing as they did, gross and histological anatomy, comparative anatomy, physiology and pathology.

Of all Monro's anatomical researches, the one best known today is his work on the *bursæ mucosæ* of the body, the treatise that we are to see tonight. It is a large folio of 59 pages, illustrated by ten plates and with a title page indited to the effect that the book is "A Description of All the *Bursæ Mucosæ* of the Human Body; Their Structure Explained and Compared With That of the Capsular Ligaments of the Joints, and of Those Sacs Which Line the Cavities of the Thorax and Abdomen: With Remarks on the Accidents and Diseases Which Affect Those Several Sacs, and on the Operation Necessary for Their Cure." Monro correctly states in the introduction that the subject of *bursæ* had been unaccountably overlooked. As evidence both of this fact and of his skill in dissection and observation, he describes 140 *bursæ*. He describes with great care the structure of these *bursæ* macroscopically and micro-

scopically and shows that they are similar in organization to the capsular ligaments of the joints. The synovial lubricating fluid of the joints and the glary mucilaginous fluid contained in the bursæ was a knotty milk in the cocoanut problem for him; still it is interesting to note how he arrived at a faulty conclusion, though reasoning from properly established premises. He knew that the bursæ and joints contained a lubricating fluid. The generally accepted explanation that this fluid was secreted by the fat pads which line and surround these structures did not satisfy him. He shows by experiment and reasoning that it is highly improbable that synovia is secreted by the fat, and yet, by a course of counter reasoning, he finally embraces the commonly accepted though erroneous view. His line of reasoning is as follows:

LONG before Dr Hunter wrote, and indeed long before he began to study my father used to observe (*e*), and in his annual courses of lectures to demonstrate, that the marrow, viewed with the microscope, looked like a cluster of pearls. To this I had added the observation, that after a good injection of the vessels, a vascular membrane could be shown surrounding each of the globules and from which the marrow was beyond doubt secreted. I afterwards found,

on

on applying the microscope in like manner to the fat, not only of man, but of other animals, that it is every where contained in spherical bags, painted with vessels resembling in size, as well as in structure, those of the marrow; none of which in diameter exceed the six-hundredth part of an inch, nor are less than one eight-hundredth part of it (*f*). Holes in the sides of these bags, or ducts leading from them and connecting them to each other, are not distinguishable, even with a microscope of high powers. In the hope of discovering more fully the texture of the adipose follicles, I have repeatedly examined with the microscope the texture of large steatons; in which I was a good deal surprised to find the follicles not only as regularly shaped, but nearly as minute as those of the fat in a sound state: Nay, I have often in the same person compared the fat of the sound cellular texture with that of a steatoma, without being able to perceive any difference. I have, besides, tried the experiment of holding a thin portion of fat between my finger and thumb, dipped into water heated to above a hundred degrees of Fahrenheit's scale, and pressing it gently, without finding that the adipose follicles can by moderate pressure be emptied or made flat; and globules of oil are not distinguishable, even with the microscope, in the liquors taken from the abdomen, joints, and bursæ.

HENCE some may perhaps infer, that there are no holes or ducts leading from them of considerable size. At the same time, from the oiliness which the surface of the skin, especially in the negro, gets after exercise; from finding that the crusts, procured by evaporating these liquors to dryness, are inflammable; from the greasy feel of the omentum, or of the appendices epiploicæ of the colon even in a living animal; from the shortness of the omentum in man, compared with the great length of it in the quadruped, which we cannot account for in any other way, than that the body of the one animal was intended to be erect, and that of the other horizontal; and, in the last place, as we scarcely can suppose that these fatty bodies in the joints and bursa and the omenta, serve merely as cushions for the defence of the fecerning vessels, and therefore cannot point out any other material use for the omentum and these fatty

fatty bodies but that of furnishing an oily matter for the purpose of lubricating, I cannot see good grounds for doubting that the oil exudes from its follicles through invisible passages into the cavities of the abdomen, joints, and bursa.

In section IX (p. 39) under the heading, "Of the Cause of the Dangerous Inflammation Which Generally Follows the Wound of a Shut Sac, and of the Manner of Preventing It," Monro promulgates a doctrine of unusual historic interest. Pasteur in 1857 worked out his famous "Théorie des Germes," confirming the supposition that putrefactive processes were the result of germ infection, and showing that a sterile solution remained sterile if protected from accidental air infection. Ten years later, in 1867, Lister developed the practical application of this doctrine. Eighty years before Lister, however, Monro emphatically states his opinion to be that the danger of infection (p. 46) lies in exposure to air. It would be unfair partisanship to claim for Monro that he understood the rationale of infection, for he did not understand it, but what he did appreciate was that the exposure of a joint, or the peritoneal cavity, to air was followed by a fatal inflammation in the large majority of cases. He knew nothing of germ life. He believed the inflammation to be a sequitur to exposure, and he vigorously asserted this belief in such sentences as "nothing can be so pernicious as opening a (hernial) sac—the bowels ought to be returned without exposing them to the air."

Worthy successor to his father, practitioner, teacher, investigator, for forty years the leader of a great school, Alexander Monro secundus merits the judgment passed on his father of having lived "a life right worthy of that school and worthy of its noble and splendid career, even until now."

EDITORIAL.

THERAPEUTIC ERROR OF CHRISTIAN SCIENCE.

The presence of a large number of devotees to the Christian Science Church at about the same time that the American Medical Association met in Boston served to bring into sharp contrast two opposite tendencies in our intellectual development: the one representing the concentrated and the combined effort to advance our positive knowledge by the earnest use of exact methods of investigation, and the other representing the effort to substitute for that vague quasi-religious metaphysical vaporings. The question of the significance of this movement must have occurred to the physicians who saw some evidence of the growth of this newest sect.

It is not, of course, to be understood that the semi-religious mystic movement of the healing power of christian science should be dignified by any serious argument or comparison. To make such a comparison, it is in the first place essential that a common language be spoken, and the terms in which the comparison is to be made must be such that the average man can understand them. That this is out of the question, the slightest acquaintance with the literature of christian science will prove.

The point that is in need of elucidation has to do with the oft-repeated assertion, made not alone by laymen, but by physicians as well, that there must be in the tenets of christian science some fundamental truth, some intrinsic therapeutic force, which accounts for its apparent growth.

The only group of diseases which the healing power of christian science might be expected to reach is naturally that class to which we give the name of functional, referring especially to the neuroses of all sorts.

It is plain that the great advance which the therapeutics of functional diseases has made in recent years lies in the different attitude which the neurologist has learned to take in respect to a patient suffering from a disease of this kind. The gist of this changed attitude lies in the effort to do away with the sense of mystery formerly thought so essential for successful treatment. In place of this, such vital forces as explanation, persuasion, logical reasoning and a thoroughly honest presentation of such knowledge as we possess on the subject, form the main therapeutic endeavor of a physician in whose mind the force of this power has taken hold.

Christian science, utterly ignorant and utterly ignoring the fundamental fact of disease as a positive natural phenomenon, attempts to supply a metaphysical error so patent that it is ridiculous, and a mysticism that is devoid of even the poetical element which ought to be found in it if it has any reason at all for existence. Leaving aside all other

errors and all other reasons for the final disappearance of this false religion, this one fundamental defect should form the most vulnerable point of attack against the therapeutic side of christian science.

THE BUILDINGS OF THE HARVARD MEDICAL SCHOOL.

An impressive feature of the recent meeting of the American Medical Association in Boston was the new buildings of the Harvard Medical School, in which so many of the sections held their deliberations.

This group of buildings, classic in design and simple in their appeal to the sense of the beautiful, are to contain the laboratories and the lecture-rooms and the common meeting places of students of medicine. For the first time, probably, in the history of medicine—at any rate, since the days of the Greek temples—medicine is housed, as it deserves to be, in buildings dignified and impressive and significant of the place which it ought to occupy in the minds of its followers and in the thoughts of those who benefit by its progress.

The intention of those who planned the buildings, as well as of those whose inception they were the final result, must have been something more than the mere furnishing of adequate buildings for a new school. It is very possible that they saw the opportunity of adding dignity to an ancient calling and removing something of the dross which still clings to the practice of medicine, by training its future followers in a place where no such influence could be consistently tolerated.

COMMENT.

TOPOGRAPHY OF THE THORAX AND ABDOMEN.*

This monograph is the enlargement of a thesis presented at the Missouri State University in June, 1903, for the degree of Master of Arts. It is based upon anatomical laboratory work done at the University of Missouri in 1901. The object of the paper is to add to the few detailed observations upon the inter-relations of the organs as found in a single body. The body has been studied by means of sections with reference to the more important thoracic and abdominal organs and systems, which are described individually, giving in each case the topography of the part, its relations to surrounding structures, and a comparison with the literature of the subject. Though this method of study of anatomy has been in use since the days of Vesalius and Eustachius, it has passed through many stages of development. The first sections of the frozen body were made by De Rimier, a Dutch anatomist, in 1803. Henke devised a method in 1883 of establishing a vertical line representing the median sagittal plane of the body, crossed by horizontal lines representing the position of the sections from which the projections are made. This method furnishes data for the accurate projection upon the chart. It also marks the beginning of a new epoch in topographic anatomy, lessening as it does the liability to error. Blum first employed the use of formalin as a preservative in microscopic technique. This was afterwards used by Gerota in topographic anatomy. Jackson recently and independently has shown that by the use of a 50 per cent solution of formalin, it is not necessary to freeze a body before sectioning. This method affords certain advantages, inasmuch as the organs are hardened in exact form and position, and all parts except the bones may be cut with a knife, thus giving smooth, even surfaces.

The body which was used for this study was that of a man who just after a full meal died from asphyxia while cleaning an old well. The body was secured two hours after death, and was at once injected through the femoral artery with 50 per cent formalin. Care was taken to have the body in a straight dorsal position, with the limbs normal. Within twelve hours the body was perfectly rigid. A few weeks later the trunk was cut into 25 cross-sections, with a long knife and saw. It was the intention to have each cut pass through an intervertebral disc, but this was not accomplished in every case. The surfaces of the sections have

*By Peter Potter, A. M., M. D., Associate Professor of Anatomy, St. Louis University, 1906. Published by the University of Missouri, \$1.75.

been horizontal and parallel to each other, but those through the upper part of the thorax are lower and thinner in front than behind. The body was so thoroughly hardened that each organ shows the impression made upon it by adjacent organs, and retains its form, even though it is cut into relatively thin sections. The main structures of each section were identified without disturbing the relations of the parts. While every part was yet in its normal position, a cut was made of each section, by placing a thin plate of glass on its upper surface and tracing the outlines of the parts with a fine pen and india ink. These tracings were transferred to paper. In making the tracings, each line was drawn with the eye and pen directly over the same part, thus avoiding displacement on account of the thickness of the glass. After the permanent outline records of the undisturbed parts were thus obtained, each section was studied in minute detail. Every part was followed from its beginning to its end, through every section in which it appears. Vessels and other hollow structures were traced by passing a bristle through the lumen. Nerves, muscles, tendons and all solid structures were traced by dissecting the connective tissue away from one side of each, so that they could be followed through the section and definitely located in the next section. The following topographic lines and directions are used. The mid-line of a section is a line passing through the middle of the sternum or linea alba anteriorly and the center of the body of the vertebrae posteriorly. The mid-plane of the body is a vertical plane which contains the mid-lines of the sections. The mid-clavicular line is a vertical line through the middle of the clavicle. The mid-axillary is a vertical line through the apex of the axilla, when the arm is in its normal position. The plane connecting the two mid-axillary lines is the mid-axillary plane. The topography of the organs is described in minute detail; and the text contains many valuable observations on the relation of parts. This text, taken in conjunction with the reproduction of the plates, gives a most precise description of the anatomic topography of the trunk. Each of the 25 cross-sections is reproduced, and carries with it a short paragraph which explains its location. The lettering of the plates leaves nothing unexplained. In addition to these 25 cross-section reproductions, there are 10 plates which show the projection of the various internal organs upon the various surfaces of the body.

We feel, in observing this piece of work, that Dr. Potter is to be congratulated upon the high degree of accuracy maintained throughout its extent. It is indeed one of the most valuable topographical studies that has yet been accomplished.

IS MALARIA AS BLACK AS IT IS PAINTED?

This question is the subject of an editorial with the above title in the *Journal of Tropical Diseases*, for May, 1906, and comes at a time of the

year where in our beloved city also malaria begins to play a great part in our morbidity statistics and as a handy means to overcome difficulties in diagnosing obscure, trivial or serious troubles that without etiologic or pathologic knowledge cannot be readily classified under a definite pathologic process, as malaria or sequelæ of malarial infection. Fortunately most of these troubles subside by themselves and in spite of the administration of quinine to which the diagnosis of malarial origin leads. In serious conditions this fact may lead to serious consequences. The point is that not only in conditions directly exhibiting some of the clinical characteristics of malaria, very often the confirmation is not sought for by the demonstration of the presence of the parasites which only in typical cases may be omitted, but that without this demonstration in many cases the existence of a chronic or latent malaria is believed to be at the bottom of many pathologic conditions and symptoms without demonstrating it. There is hardly any of the common, mostly infective, but also constitutional diseases, that is not claimed to be able to be the effect of a malarial infection. They are all diseases that may appear at any time and without possible exposure to malarial infection, but when they occur in combination or in sequence of such infection the mind follows the beloved post hoc propter hoc reasoning and inculcates the plasmodium. The fact is that we have absolutely no evidence that any causative connection exists between the factors of such a complication. That malaria is, in the great majority of cases, a light disease, that it is, in almost all cases, easily amenable to treatment which, if properly administered, leaves the patient after recovery in the same constitutional condition as before the affection, is a fact. That under certain but rare circumstances it is followed by severe after-effects, and can even lead to death, is well known, too. But these effects, not complications, are so essentially different from the complications thoughtlessly attributed to a previous or existing malarial infection that they do not lend any assistance in justifying the assumption of malarial causation for totally different phenomena. The direct consequences of a severe malarial infection, the minute minority of all the cases, are so typical, that they do not bid fair to suggest that so many other complaints are due to the same cause. Malarial infection in our country, if properly managed, will never interfere with the constitutional qualities of a patient for a long period, nor will it produce lasting impressions. The decisive factor is the diagnosis at the proper time. Chronic neglected cases are a type so peculiar and characteristic that they cannot enter into the discussion here. The journal mentioned as freely and straightly discussing this question must be highly recommended. It goes to the bottom of the question, and is the more weighty because it emanates from a journal devoted to the discussion of tropical diseases. Koch has shown how comparatively harmless malaria is in countries where it is

endemic, where the children without any symptoms and disturbances have malaria as a children's disease and are immune against it during the adult life. The suspicion of a malarial causation of many not directly understood conditions is absolutely unjustified in spite of the teachings of text-books.

CERTIFIED MILK.

In an interesting resume, Stewart* gives the results of his examinations of certified milks in Philadelphia. Five of the six dairies whose milk was examined, were holding the certificates of the Milk Commission of the Philadelphia Pediatric Society, and the author's conclusion that these milks are among the best produced in this country, is probably justified. Yet the examinations showed that in a very considerable proportion of the tests, the samples fell below the standards required by the Philadelphia Board of Health for ordinary low-priced milk. The bacterial standard of 10,000 per cc. was, on the whole, well maintained, but it is noteworthy that milk from all the dairies had to be condemned at times on account of the excessive number of pus cells. It appears probable from these researches that one examination per month by the experts of milk commissions is not enough, especially in the summer months, because in nearly all cases, the equipment of the better class of dairies is in advance of properly trained help to run them. Special and frequent instruction is very necessary for the dairy attendants, and it should be considered part of the work of a milk commission to give such instruction.

The problem is certainly a most difficult one, and one of the causes of the difficulty is the expense to which the dairyman must be put for increased examination. These special examinations might very properly come within the province of municipal health boards. If the municipalities were willing to bear the expense, many of the difficulties attending the production of clean milk, would disappear.

The suggestive investigations of Stewart certainly show conclusively that even as regards certified milk, the price of purity is unceasing vigilance.

* Stewart: Certified Milk of Philadelphia, *Amer. Jour. of the Med. Sci.*, Apr., '06.

MEDICAL AND SURGICAL PROGRESS.

INTERNAL MEDICINE.

IN CHARGE OF

JESSE S. MYER, M. D.

ULCER OF THE STOMACH: PATHOGENESIS AND PATHOLOGY.—Turk (*Jour. Am. Med. Ass'n.*, Vol. XLVI., No. 23, page 1753). Turk gives the reason for the normal stomach not digesting itself, as follows: (a) General protection (1) "Sensitive Soul" (Stahl), (2) "Vital force" (Hunter), (3) "Vital resisting power of the tissues" (Riegal), (4) Alkalinity of the blood (Pavy), (b) Local protection, (1) Mucous acting as a protective coat (Vaughn, Harley), (2) Constant reproduction of exfoliated epithelium, (3) Anti-pepsin ferments residing in and as a part of the gland (Wineland). Previous investigator experiments on the production of ulcer are classified as follows: A. Mechanical; physical and chemical, injury with or without the presence of HCl. (Ritter, Becker, Mathews, Schmidt, Korte, Roth, Riegal, Ewald, Pawlow, Du Misinl, Agron, Kavetsky). B. General Dysemia (Virchow, Quinsy, Duetnoyer, Silverman, Futter, Conheim). C. Disturbance of local circulation (Virchow, Klebs and Welter Penum, Palma, Rindfleisch, Exclkey, Mueller). D. Injuries to the nerves and nerve centres (Scharff, Abstein, Brown, Sequard, Bedovor, Yecrew, Saitta, Ophuls, Koch and Ewald). E. Local infection (Conheim, Bawtcher, Mamwerck).

His experiments with mechanical, chemical, local infection, injection of toxin, systemic disturbances and injection of peptones were without results as to producing ulcer artificially. Six guinea-pigs and rabbits closely confined in small cages showed six ulcers, two spontaneous and four by local lesions. Experiments by inoculating and feeding the bacillus coli communis produced spontaneous ulcer in the gastro-intestinal tract in 100 per cent. His conclusions are, 1st, that ulcer of stomach and duodenum can be produced by feeding *B. coli communis* for variable length of time. 2nd, that a firm basis has been established to solve the etiology of ulcer. He suggests that the study of the blood changes, specially of the hemolytic, agglutinating, bacteriolytic, phagocytic strength of the blood, coagulability, reaction, action of serum on digestion, hemoglobin curve and the differential leucocyte count; that the pathology of ulcer in the different stages of development and also the condition of the spleen, liver and bone marrow, be further studied histologically. That the altered metabolism be investigated by analysis of the excretions. That the production of ulcer by other bacteria and the susceptibility of other animals be determined.

SANITARY SUPERVISION OF PULMONARY TUBERCULOSIS AND OTHER COMMUNICABLE DISEASES BY THE DEPARTMENT OF HEALTH OF THE CITY OF NEW YORK—Billings (*Medical Record*, Vol. 67, page 770).—

The general procedure in cases of pulmonary tuberculosis, typhoid fever, cerebro-spinal meningitis, pneumonia, malaria, puerperal septi-cemia and erysipelas, which is exercised by the Sanitary supervision of the Department of Health of New York is as follows: 1. All cases of pulmonary tuberculosis, typhoid fever, cerebro-spinal meningitis, occurring in the City of New York are registered at the Department of Health and all necessary steps taken to render that registration as accurate and complete as possible. 2. Every person (or family of such a person) suffering from those diseases is furnished with instructions as to the measures to be taken to prevent its extension. 3. Beddings, etc., used by persons suffering from those diseases, is disinfected; all premises which have been occupied by persons suffering from pulmonary tuberculosis cerebro-spinal meningitis, on death, removal, or recovery of the patient, are disinfected with formaldehyde, or renovation is ordered. 4. Charitable assistance or hospital care is provided so far as possible for all persons wishing or requiring such assistance or care. 5. The general public is educated as to the nature of the above diseases, the precautions to be taken against their spread, the advisability of institutions and sanatorium treatment, etc. 6. Pulmonary Tuberculosis: Patients with no attending physicians are (a) visited at their homes by nurses and given necessary assistance and advice; (b) provided with extra diet (milk and eggs) when necessary; (c) Given free medical treatment at department clinics. 7. Typhoid Fever. Information as to probable source of infection (water, milk, oysters, etc.) is investigated in every case and suitable action taken. 8. Cerebro-Spinal Meningitis. Quarantine of patients at their home is enforced and other children in the family excluded from the school.

AN ADDITION TO THE CLINICAL SYMPTOM-COMPLEX OF ABDOMINAL ARTERIO-SCLEROSIS.—Rosengast (*Munchener Medizinische Wochenschrift*, No. 20, May 15, 1906, page 966). Rosengast reports five cases of arterio-sclerosis of the gastro-intestinal tract and reviews the atypical findings of more or less localized arterio-sclerosis. He says that a tortuous temporal artery, as shown Kelemperers; a normal pulse; normal blood pressure, normal urine, etc., are not positive criterion for normal arteries generally. Also that these findings may be abnormal with stenocardia without stenosis of the coronary arteries. The symptoms from the gastro-intestinal tract in generalized arterio-sclerosis are frequently due to primary arterial changes of that system, instead of secondary conditions (passive congestion, reflex from heart, etc.). Some of the symptoms of this primary condition are rumbling and painful distention of the abdomen, especially in the right hypochondrium; intermittent colic and regurgitation of gas, which gives a temporary relief; occasional hemorrhage; sometimes the passage of flatus with or without feces; irritability; restless sleep, the patient being disturbed frequently early in the morning by distention and pain in the stomach, which is sometimes relieved by sitting up and taking food; appetite good, bowels somewhat constipated. Physical findings are meagre. Digestion normal. Hcl. sometimes increased; pulse rate usually gradually increased; heart dullness enlarged; soft systolic sound and accentuated second aortic sound;

and increased blood pressure. Alcoholics with eczema ani and hemorrhoids have frequently been observed to have this condition. The condition had remained undiagnosed for years until an attack of stenocardia has directed the attention to the cardio-vascular system. Men with strenuous occupations seem predisposed. As to the differential diagnosis many abdominal conditions must be differentiated according to the distention and localization of this condition as follows: Gall stones, appendicitis, foreign bodies in the ureter, intersusception, intestinal obstruction, ulceration, etc.

He illustrates the difficulty of diagnosis by three cases (Ronberge, Schmiddy and Ortner), which were operated upon under mistaken diagnosis.

INTESTINAL SYPHILIS.—Suarez de Mendoza (*Muenchener Medizinische Wochenschrift*, No. 21, May 22nd.)—Cases of chronic diarrhoea which would not re-act to ordinary treatment lead the author to give subcutaneous injections of large doses of mercury with very favorable results, and from those cases he has drawn the following conclusions: Intestinal syphilis is an affection which occurs more frequently than is commonly considered. It is usually located at the lower end of the ileum and the large intestine. Its symptomatology is so vague as to make a diagnosis very difficult. In a case of diarrhoea which does not react to the ordinary treatment one should consider hereditary syphilis, and institute specific treatment. The author has had cases which deny all syphilitic infections.

AUTO-INTOXICATION.—Rovighi (*Muenchener Medizinische Wochenschrift*, No. 21, May 22nd). Rovighi says that clinical and experimental investigation which he has made since 1890 shows that the toxic products of the fermentation of the intestines (indol, skatol and ional) act (a) upon the nervous system; (b) upon the liver; (c) on the kidneys, and (d) on the blood and blood-producing organs. The toxicity of the urine is increased under pathological conditions, as in epilepsy, melancholia, etc., and these conditions are caused by constipation and disturbance of the gastro-intestinal function. Diet will produce a great influence on this condition of the urine. Saline purges, enteroclysis with boric acid solutions, will greatly decrease their production in the intestines. Abundant use of water, with active exercise, will increase the secretion of these products in the urine. One can accept that these products play a certain role in different clinical pictures of disease which their seat of action on the liver (congestion, dyspepsia, etc.). Also in the blood-producing organs, as the anæmia of schoolgirls, anæmia of gastro-enteroptosis, "Werthoffschen" sickness, and nervous diseases of different kinds.

TUBERCULAR ENDOCARDITIS.—M. Rene Gautiere (*Gazette des Hôpitaux*, 615, May 5, 1906). That this condition presents polymorphous lesions, and especially polymorphous clinical findings, Gautiere says, all could agree. He would not call it, correctly speaking, "Tubercular Endocarditis," but rather "Endocarditis occurring with tuberculosis." Ac-

cording to findings as given in classical cases, it might manifest itself as (1) a secondary infection; (2) a Koch bacillus infection with the local production on the endocardium of granulation tissue, etc., and (3) a tubercular toxemia (tubercular toxic endocarditis). The toxins could produce anatomical lesions of the endocardium (mitral stenosis, etc.) analogous to changes found in the joints in tuberculosis. The prognosis is usually fatal because the conditions occur most frequently in advanced stage of the disease. The diagnosis is difficult, because the general symptoms of the advanced stage mask the local findings and the extra-cardial murmurs prevent the recognition of endocardial murmurs. In some, the rhythm and intensity of the extra-cardial murmurs is of prognostic value. In some cases it is characterized by valvular phenomena as mitral stenosis, which tend to arrest pulmonary tuberculosis, and in some stenosis of pulmonary artery, which has a fatal influence. It may also appear first as a rheumatism, which may disappear or be complicated by an endocarditis. It has occurred primarily as a common infectious endocarditis, and also with primary manifestation elsewhere, accompanied by secondary cardiac infection, demonstrated clinically by local and general findings.

THE PRODUCTION OF LIVER ABSCESS FROM RETROGRADE EMBOLI.—Risel (*Virchow Archiv.*, Bd. 182, H. 2).—Risel reports an interesting case of a man 27 years old with thrombosis of the sigmoid sinus secondary to otitis media and abscess of the heart, lung, spleen, kidney and liver. The abscess of the liver began in the veins of the liver, for which reason he establishes a retrograde embolism. He also succeeded in producing liver abscess by retrograde embolism in animals.

ABDOMINAL PALPATION.—Arnold Pollatschek (*Berliner Klinische Wochenschrift*, No. 21, May 22, 1906.)—Pollatschek recommends palpation of the abdomen in a warm bath in those conditions in which abdominal palpation is difficult for any reason, as thickness of abdominal walls, due to adipose tissue, uncontrollable rigidity, or contraction of rectus muscle, tenderness, etc. If this is not practical, he recommends an examination after prolonged application of heat to the abdomen in the form of poultices, etc. He says that this will overcome, to a great extent, any diffuse resistance by producing a relaxation of the abdominal muscles.

DESTRUCTION OF THE RIGHT KIDNEY FOLLOWED BY OEDEMA OF THE LARYNX AND SUPPURATIVE PERICARDITIS.—E. P. Bernet (*Le Journal de Médecine et de Chirurgie*, VI., No. 10, May 26, 1906.)—Bernet reports a very interesting case of a man of thirty-two whose family and past history was negative. He had been well enough to travel extensively entirely free from symptoms until a few days previous to the onset, when, after alcoholic excesses for one night, he was suddenly taken sick with pain in the throat, difficulty of swallowing, dyspnoea, and concomitant symptoms for which he was sent to hospital. The first examination demonstrated only oedema of larynx, which was relieved by local treatment. Two days later the patient's unsatisfactory condition demanded

another examination, during which a pericarditis was revealed, which, on aspiration, proved to be purulent (in the pus of which were found pneumococci in large numbers). As this did not improve the conditions pericardiotomy was performed with evacuation of two litres of pus, after which the patient was relieved of symptoms of dyspnoea, cyanosis, dysphagia, and was much improved generally for two days. At the end of that time oedema of the larynx reappeared, for which the patient was incubated, and later tracheotomy was performed without relief. No other abnormal condition was found. The urine examination was practically normal, with the exception of a trace of albumen; amount 1200 cc. No diagnosis was made. Autopsy showed (1) oedema of the larynx, congestion of the trachea and large bronchi; (2) distended pericardium with membranous patches on both layers, slightly adhering to the thoracic walls. Heart, large. (3) Congestion of the liver. (4) Right kidney destroyed and transformed into an enormous cyst, full of serum. Left kidney was twice the normal size, congested, but of normal color, cortical layer very thick; capsule not adhering. (5) All other organs normal. The oedema of the larynx and pericarditis were caused by the broken renal compensation induced by the alcoholic intoxication.

PATHOLOGY AND BACTERIOLOGY.

IN CHARGE OF

CARL FISCH, M. D.

THE ACTION OF QUININE UPON THE TERTIAN, QUARTAN AND ESTIVO-AUTUMNAL MALARIAL PLASMODIA.—Chas. F. Craig (*Amer. Med.*, April-May, 1906). A very extensive study of malarial blood in all stages and conditions and in all forms of the parasite led Craig to a conclusion theoretically and practically of great importance. Following the teaching of German and other observers, the belief was, that quinine exerted its influence only on the very young merozoites, and that its administration had to take place at the time of the sporulation. Craig has found that all stages of the cycle of the parasites are influenced, except the stage just prior to sporulation. His observations were made upon fresh blood as well as upon stained specimens. He gives the results shortly in the two following theses: (1) "Quinine exercises an injurious effect upon the plasmodia of malaria during all stages of their human life cycle, whether intracorpuseular or extracorpuseular, except when it is given just before sporulation; at this time the sporulating body is not injured and sporulation occurs, but most of the spores are destroyed by the drug, while they are free in the blood plasma. (2.) The marked morphological changes, degenerative in character, produced by quinine in all species of malarial plasmodia, during all stages of their growth, prove that in order to secure the best therapeutic results the drug should be continually present in the blood. This is only possible when it is administered in divided doses at regular intervals of time.

EXPERIMENTAL PULMONARY PHTHISIS.—J. Orth (*Berl. Klin. Woch.*, 1906, May 4, p. 645.)—Orth has succeeded in producing typical lesions, identical with those of the human lungs, in guinea pigs, injected subcutaneously or intraperitoneally with tubercle bacilli. The lesions were in some cases limited to the lungs, forming smaller and larger cavities all through them. The difference in this tissue destruction, uniform through the whole organ, that in human phthisis is in most cases confined more or less to its upper portion is brought in connection with the different positions of the lungs in both species, horizontal in the guinea pigs, vertical in man. Of 12 guinea pigs inoculated with the same dose of the same bacillus 4 developed phthisis. The question why only they showed this lesion cannot be answered; it occurred under the most varied conditions of the experiment, while the others died of a miliary tuberculosis. Orth assumes individual conditions unknown to us as the factor. Besides the fact that here for the first time typical phthisis is produced artificially, not through the respiratory tract, but from the peritoneum or through the skin, another immensely important observation is made. While the teaching today is to attribute the phthical lung affection to a complication of the tuberculous process with a pyogenic superimposed infection, or, by others, to make it dependent upon the latter alone, Orth, working under the strictest aseptic conditions, has in no case found mixed infection, the lesions always containing in sections, culture and animal inoculation only tubercle bacilli. How much this will change the accepted views on human phthisis cannot be predicted for the present. It, however, makes it very possible that phthical lesions in man, too, may be purely due to the action of tubercle bacilli.

SPIROCHÆTE IN RELAPSING FEVER.—Papers by Carlisle, by Morris, Poppenheimer & Flournoy, by Novy and Knapp (*The Jour. of Infect. Diseases*, Vol. 3, No.3).

ABOUT CULTIVATION OF SPIROCHÆTES AND FUSIFORM BACILLI ON ARTIFICIAL MEDIA.—P. Muchlens (*Deutsch. Med. Woch.*, 1906, No. 20.)

REMARKS ABOUT THE DEMONSTRATION OF SPIROCHÆTE PALLIDA WITHIN TISSUE.—Erich Hoffman (*Deutsch. Med. Woch.*, 1906, No. 22). The most thorough investigation of spirochæte infection in man is reported in the papers published in the last issue of the *Journal of Infect. Diseases*. The cases studied in New York and the experimental research of Novy on an organism derived from another case of relapsing fever have revealed the so far very obscure character of this infection. By Novy the proof has been brought, that spiroch. *Obermeieri* has the same relations to the human organism that other bacteria have. He has studied the reactions and has found immunity products absolutely analogous to those produced by other pathogenic bacteria. It is impossible to enter into the details of the complex array of experimental results brought together into this classic work. The course and etiology of relapsing fever, and with it those of related diseases, the tick fever of Africa and South America, a number of animal spirochætoses are by it brought to as clear an understanding, as that of well-known other bacterial infections. The work resulted even in the evidence of the possibility of sero-therapeutic procedures for prophylactic and curative pur-

poses. The difficulty lies in practical obstacles that so far prevent the activation of these measures. A short review of the methods used by Novy and Knapp to lay bare the life-cycle of Obermeieri's organism and all its complex relations to the human organism is not possible. Only one point may be touched upon here, that on the present discussion of the syphilis etiology has a great bearing. For the spirochætes of relapsing fever and with the highest probability for the nearly related other spirochætic diseases in man and animal Novy has established the bacterial character of the organisms. There seems to be no doubt that these spirochæte are bacterial in their morphologic and biologic character, having in these nothing in common with so-called sporozoic parasites. The etiologic factor of syphilis, also a spirochæte, has from its discoverer been stamped as a protozoon, with characters suggesting a trypanosoma stage. To him this suggestion easily came by work on organisms, in which a spirochæte stage was a stage in the course of the cycle of development. In syphilis, where protozoa had been suggested as cause in view of the failure of discovering a causative bacterium, he found constantly the spirochæte pallida. Certain phenomena were observed separating it seemingly from the so far known spirochætes, phenomena about the character of which there is even today no uniform opinion. We have even now no certainty whether the pallida has to be classed as a relative of the Obermeieri or whether it has only its shape in a certain stage of its life, and in the others appears in forms so far unrecognized. Novy insists on the bacterial character of the pallida, and, so far as conclusions from analogy can go, the weight of evidence is in his favor. As long as no experimental evidence will decide the question, it is useless to give the one or the other opinion as the most probably true one. It must, however, be said that Schaudinn himself has become less positive about his first suggestion, and that he leaves, more or less, the decision to the future. The latest paper of his collaborator, Hoffmann, shows the same inclination to a change of conception. In this connection, the paper of Muehlens is of interest, who succeeded in cultivating the spirochæte dentium on serum media under anaerobic conditions in pure culture. As the cultivation of blood after Novy's method with spirochætes has in every case given a negative result, the relationship to trypanosoma-like organisms has not become more probable. It must, however, not be forgotten that Schaudinn never thought of it, considering the name of trypanosoma only as a morphologic expression of stages of the development in certain protozoa. That in spite of the tendency to class spirochætes as bacteria, there must be something mysterious, as yet, about them, is shown by the attempt to demonstrate their interchangeability with typical bacterial forms, as, for instance, the conclusions drawn by Tunncliffe from her cultivation of fusiform bacilli with gradual transitions into spirochæte. Her results have not been corroborated by Muehlens, who, to a degree, accounts for them by the fact that spirochætes make their appearance in cultures only late. The pictures given by Tunncliffe do not suggest the so-called transitions to a spirochætic character, nor that the perfect spirochætæ have anything to do with those found in the original material from which the cultures started out. The result of all

this work is for spirochæte *Obermeieri* and relatives a full establishment of their life, etiologic role in diseases, and of the course, prevention and cure of these diseases. The spirochæte of syphilis so far is too little known to bias further studies by preconceived ideas. Its etiological importance is established, the more so, as a nearly related infection, yaws shows an almost identical micro-organism.

ABOUT TUBERCULOSIS IN INFANTS.—P. Geipel (*Zeitchr. f. Hyg. u. Infect. Krankh.*, Vol 53, Heft. 1.)—Geipel reviews the results of a careful pathological and anatomical study of tuberculosis in infants less than one year old. It is the first time that such a large material of this age has been worked out so minutely. Eighteen of the cases were less than six months old, 14 from six months to one year. In all of them the picture of the disease was that of a general dissemination. The explanation for this fact can only be looked for in special conditions present in the organisms of an infant. The power of resistance is very slight, the tissues do not show that varying degree of resistance which is the rule in later life. One thing is certain: that the existence of a latent tuberculosis cannot be demonstrated anatomically. The mortality reaches 100 per cent. That means that all infants acquiring the infection will die of it. Whether the author is justified to assume that the port of entrance must be in the first place the respiratory tract, must be doubted. The last years have taught so much in this line, that general conclusions from autopsy observations cannot be any more considered as binding as to the primary lesion. He is correct in finding the source of infection in all cases in tuberculous individuals coming in contact with the infants.

DIAGNOSIS.

IN CHARGE OF

ALBERT E. TAUSSIG, M. D.

CONCERNING SAHLI'S DESMOID REACTION.—Max Einhorn (*Deutsch. med. Wochenschr.*, 1906, No. 20.)—Sahli's desmoid test of gastric digestion is based upon the observation of Ad. Schmidt that cat-gut is digested by the normal gastric juice, but is never, if it escapes destruction in the stomach, digested in the intestine. Sahli accordingly places a small amount of iodoform or of methylen blue in a gutta-percha bag, ties the latter securely with raw cat-gut and administers the whole, like a pill, immediately after a meal. The normal gastric juice will dissolve the cat-gut thread and cause an appearance of iodine in the saliva or of methylen blue in the urine, as the case may be, in about 12 hours. If the reaction appears within 4 to 7 hours a hyperacidity may be assumed; if the reaction does not appear at all, or at least not until the next day, a motor or secretory gastric insufficiency exists.

Einhorn disputes the validity of all of these inferences on the fundamental ground that cat-gut is digested not only in the stomach, but also in the intestine. He administered pearls of cat-gut imbedded in solid

antimon-fat. It is clear that the fatty envelope could not be digested off, setting free the cat-gut, until the bolus had reached the intestine and had been submitted to the action of the pancreatic juice. Nevertheless the examination of the stool of these individuals showed a complete digestion of the cat-gut, a process that must have taken place in the intestine. Moreover, he reports 4 cases of complete achylia gastrica in which the desmoid reaction appeared within the normal limits. He therefore concludes, and apparently correctly, that Sahli's desmoid reaction, attractive as it may appear in its simplicity, has no clinical value.

THE PROPHYLAXIS OF GASTRIC HEMORRHAGE.—I. Boas (*Deutsch. med. Wochenschr.*, 1906, No. 18.)—Boas once more urges the importance of the routine examination of stool and stomach contents, in cases of gastric ulcer, for indications of occult hemorrhage. Even where macroscopically there is no sign of bleeding, a careful chemical examination may reveal the presence of altered hemoglobin. Unfortunately none of our tests for traces of blood in stool or stomach contents are quite satisfactory. The methods hitherto chiefly used, particularly the guaiac-turpentine method, the aloin method or the benzidin method recently commended by O. and R. Adler and by Schumann and Westphal, in a word all simpler clinical methods depending upon the oxidizing power of blood pigment, are faulty in that their results are not quite unambiguous. Even the more complicated methods, possible only in hospitals with well-equipped laboratories, such as the spectroscopic method, which requires a large amount of material, do not avail to distinguish blood due to occult hemorrhage from that ingested with the food. It will be only when a clinical method, enabling us to distinguish with certainty between human and animal blood, has been worked out, that the chemical tests for blood in stool or vomit will give us certain and pathognomonic information. Till then, we must endeavor to counteract the faults inherent in the methods by conducting our tests with the greatest care, if possible with a meat-free diet, and by interpreting our results with the greatest caution. Nevertheless these tests for occult bleeding, especially in suspected gastric ulcer, are quite indispensable and should be done repeatedly in every suspicious case. Not only are they of the greatest diagnostic importance, but they are also our only means of detecting and thereby often preventing an impending serious hemorrhage.

A NEW URINARY TEST FOR SANTONIN.—Neuhaus (*Deutsch. med. Wochenschr.*, 1906, No. 12.)—It is occasionally of importance to recognize the presence of santonin in the urine, not only because it may simulate pathologic constituents, such as sugar, but also because we may desire information as to the degree of absorption when the drug is given in intestinal disorders.

To a few ccm. of urine several drops of Fehling's solution are added. A dark green color appears, which, on adding more of the solution, turns a reddish violet. If now acetic acid be added, the color becomes a characteristic bright green. The urine of children who have taken santonin in the usual doses always shows this reaction typically; in

adults it appears only after the ingestion of comparatively much larger doses.

AUTOSEROPROGNOSIS.—Landolfi (*Gazz. d. Osped.*, 1906, No. 24.)—A valuable means of ascertaining the nature of a pleuritic or ascitic exudate consists in injecting small amounts of the fluid hypodermically into the patient himself from whom it was obtained. A rise in temperature following the injection speaks for the tuberculous nature of the exudate. Moreover, within certain limits, the prognosis is graver the smaller the amount of fluid necessary to produce a rise of temperature, the more quickly the fever appears and the longer a time it continues.

VOCAL FREMITUS IN CROUPOUS PNEUMONIA.—Arneth (*Muench. med. Wochenschr.*, 1906, Nos. 17 and 18.)—Arneth finds that during the period of hepatization in pneumonia, vocal fremitus is constantly absent, while bronchial breathing and typical bronchophony may be heard. In the first and third stages of the disease, on the other hand, the pectoral fremitus is ordinarily exaggerated.

THERAPEUTICS.

IN CHARGE OF

WALTER BAUMGARTEN, M. D.

THE ACTION OF EUNATROL.—Girardi and Schifone (*Gazz. degli Ospedali*, June 27, 1905; *Ztbl. f. d. ges. Therap.*, May, 1906,) demonstrated in dogs that eunatrol (sodium oleate), given by mouth in doses of 3-5 gm. caused a fivefold increase in the quantity of bile. Subcutaneous injection of the salt produced the same effect, though to a smaller degree. Fresh portions of rabbit's liver immersed in physiological salt solution, to which a trace of sodium oleate had been added, secreted bile pigment which was chemically demonstrable, while control tests were negative.

Clinically, eunatrol reduces the severity and the duration of gallstone colics, and makes them of less frequent occurrence. It also reduces or completely dispels the various gastric, etc., disturbances which frequently occur during the intervals of attacks. Good results were also obtained in catarrhal jaundice. Four to eight pills daily is the usual efficient dose. The drug has also been found efficacious in constipation.

THE TREATMENT OF DIABETES INSIPIDUS WITH INJECTIONS OF STRYCHNINE.—Ketly (*Therap. d. Gegenw.*, March, 1906) treated four cases of diabetes insipidus with hypodermic injections of strychnine nitrate, beginning with 5-10 gm. (one dose per day) and increasing 1-10 mg. daily until 0.1 gm. was given at a dose. For three subsequent days 0.003 gm. was given three times daily in pill form by mouth, and the dose was then discontinued.

In three cases the daily quantity of urine was reduced to normal and remained so. In the fourth case the treatment was useless.

CURE OF A STRICTURE OF THE OESOPHAGUS OF LONG STANDING BY MEANS OF THIOSINAMIN.—Pollack (*Therap. d. Gegenw.*, March, 1906) reports a strikingly successful application of thiosinamin in a case of stricture of the oesophagus. The stricture was caused by the accidental swallowing of a solution of sodium hydrate. The patient had been unable to swallow solid food for eight years, no sounds could be passed for the last two years, and liquids had not passed for several months; nourishment had been given through a gastric fistula. Injections of thiosinamin (2 gm. dissolved in glycerin 8 gm. and water 10 gm.) were made into the arm (one-half of a Pravaz syringe, every other day). After the third injection a small sound could be introduced, and liquids could be swallowed. At the end of six weeks the largest sound could be passed with some difficulty, and solid food was taken with ease. After 24 injections, treatment was discontinued, and no recurrence has taken place.

PANE'S ANTIPNEUMONIC SERUM.—Tartaro (*Buffalo Med. Jl.*, June, 1906) reports the results in 25 cases of pneumonia treated with Pane's antipneumonic serum. 1. No change in the physical signs takes place. 2. The gravity of the pneumonia is mitigated, but its course is not shortened. 3. A fall in temperature of from one to three degrees follows the injection of 10 cc. of serum. 4. The subjective symptoms of the disease are ameliorated even when the temperature is not reduced. 5. Cyanosis and albumin in the urine disappear. 6. Cardiac complications, which, with the two foregoing conditions, are due to the pneumococcus toxins, are relieved by the serum. The serum should be injected in doses of 10 cc. to 20 cc. and repeated at intervals of 12 hours. In severe infections much greater quantities may be used, as much as 100 cc. to 120 cc. per day.

THE EFFICIENCY OF MARMOREK'S SERUM.—Rover (*Beitr. z. Kl. d. Tub.*, Bd. V. H. 3, 1906) concludes from observations in 25 cases of various sorts of tuberculous infections that Marmorek's serum is of no apparent value in pulmonary tuberculosis; its effect cannot be differentiated from that of the fresh air and rest treatment, which was carried out in all cases. In bone tuberculosis and tuberculous adenitis, on the other hand, it proved to be of positive value, as could be seen from the disappearance of pain and fever, and the reduction in the size of infected glands. In infections of the bladder and kidneys, improvement was only temporary.

Systematic blood examinations showed a uniform increase in the number of neutrophile leucocytes, following serum injections and a concomitant though frequently temporary improvement in both the local and general condition.

THE ACTION OF QUININE UPON THE TERTIAN, QUARTAN AND AESTIVO-AUTUMNAL MALARIAL PLASMODIUM.—Craig (*Am. Med.*, April & May, 1906), after studying the effect of quinine on the various forms of malarial plasmodia in stained specimens, finds that quinine acts injuriously upon the plasmodium in all stages of its development with the

possible exception of the large full-grown plasmodium just prior to segmentation. To secure the best results, the drug should be given at regular intervals, in divided doses, so that it is always present in the blood, and stops the development of the plasmodia which have escaped it while free on the blood plasma. He found that doses of 0.5 gm. administered every three hours until 1.5 to 2.0 gms. were taken, effected a prompt and more rapid recovery than when a single large dose was given just before sporulation.

SURGERY.

IN CHARGE OF

WILLARD BARTLETT, M. D.

THE SURGICAL THERAPY OF GASTRIC ULCER.—Eiselberg (*Mitt. aus den Gren., der Med. and Chir.*, 16 Band., 1 Heft.).—This subject, which has attracted so much attention among American surgeons recently is also beginning to be heard of in Europe. This report, from one of the largest clinics in Vienna, has some interesting points in it, but the number of cases upon which the author's theories have been tried are ridiculously small compared with the amount of material which is quoted from many of our American clinics.

The Mayos alone have done more than six hundred operations for ulcers of the stomach and duodenum, still, this author, with characteristic foreign near-sightedness, fails utterly to refer to their work, or to that of any other American surgeon.

Many of the questions which prominent German speaking surgeons are now debating over have long been settled and become obsolete in this country, but, strange to say, the above named gentlemen are very slow in finding that out.

The author divides the subject into open ulcers and scars which follow ulcers. The two chief dangers of an open ulcer are perforation and hemorrhage. He has operated six times for the first named affection with three recoveries. He expresses well the difficulty of finding a bleeding point within the stomach. Often the ulcer is not situated where it can be easily reached, and again the bleeding is hard to control after it is found. Often there is more than one ulcer, and frequently no sign of the lesion can be detected upon the exterior of the organ. Hence, the author does not consider it well to operate for hemorrhage as such in the acute stage, but it is quite another question when there are multiple small hemorrhages which are rapidly reducing the patient's strength. Here surgery finds its chief indication. He gives a reason why he does not highly value removal of the pylorus for ulcer. He saw one case where Billroth did this operation for ulcer and five years later the patient bled to death from another ulcer. However, it must be admitted that this is a most unusual occurrence. Pyloric spasm is best treated, our author says, by gastroenterostomy. He goes into no details concerning the technique of these operations.

POTASSIUM PERMANGANATE AS A REMEDY IN SNAKE-BITE.—(Abs. *Therapeutic Gazette*, May, 1906.)—In our last issue we called attention to an article by Crun in the *Jour. Amer. Med. Ass'n.* on this same subject.

Capt. Rogers, of the Indian Medical Service, reports 12 cases of snake-bite treated with free crucial incisions of the bitten part and thorough flushing of the part with a hot solution of permanganate of potassium. There were 10 recoveries. Of the 12 cases, 2 were due to the russel viper, 7 to the cobra, and 3 to a snake not identified. He analyzes the results as to kind of snake, position of bite on body, number of fang marks, etc. The conclusions at which he arrives are that permanganate of potassium is to be regarded as one of the most valuable remedies in this condition, and advocates the employment of the lancet.

A very interesting instance is reported by Civil Surgeon Choudhuri of a dog bitten by a viper and treated with permanganate of potassium, the dog recovering. Two other dogs bitten by the same snake and receiving no treatment died within two hours after being bitten.

POST-OPERATIVE HERNIA.—Amberger (*Beit. zur. Klin. Chir.*, Band. 48, Heft. 3).—The author succeeded in following 180 laparotomies, done in the clinic of Prof. Rhen at Frankfort. He found that 12 per cent. of these incisions were followed by hernia, that is, it occurred twenty-three times. One hundred and five of the patients were strong, 35 medium, and 22 weak. The difference between these three classes, as regards the formation of hernia, was so slight that the author has justified a conclusion that the patient's muscular condition has very little to do with the matter. He found that most of his herniæ occurred in children whereas twice as many were males as females.

Most of his patients have been operated upon for appendicitis, hence it is not strange that the largest number of herniæ occurred in this class, but it is interesting to say that the highest per cent. was among these. Due consideration is given to the injury of nerves and muscles which predispose to this kind of trouble. As might be supposed, the accidents were least common where the upper abdominal wall was incised. The influence of a binder was so slight upon results obtained that little can be said in defense of the practice of wearing one. Drainage was responsible in so many of the cases that it can be said to have far more influence than any one factor.

The author's conclusions are that we must try in every way to prevent suppuration in the wound. That we must do as little draining as barely necessary and that secondary suture will be of value in preventing this accident.

ANATOMY OF THE INGUINAL REGION.—Witherspoon (*Jour. Amer. Med. Assn.*, May, 1906).—This very interesting article is based upon the study of some fifty dissections. In comparison with the descriptions of this region by Toldt, Spalteholz, Morris, Gray, Deaver and Zukerkandel, the author finds the results of his investigations to be somewhat at variance. After a very careful and accurate consideration of the structures composing this region, the author summarizes, emphasizing the following points:

The internal abdominal opening is located in the extraperitoneal fatty tissue.

Hesselbach's ligament is formed by fibrous bundles which connect the outer end of the semilunar fold of Douglas with the inner margin of the internal abdominal opening. During intra-abdominal pressure, Hesselbach's ligament, due to its resistance, helps to increase the size of the internal abdominal opening.

In the inguinal area the internal surface of the abdominal wall is divided into two planes by Hesselbach's ligament. When the muscles of the plane lateral to this ligament are weakened by disease or advanced age, the intra-abdominal tension greatly exaggerates the difference between it and the plane median to the ligament. Since the internal abdominal opening is at the junction of these two planes, the greater the difference between them the greater the possibility of the escape of a viscus through the opening.

The transversalis fascia does not join Poupart's ligament at any point.

The fibrous bundles passing out of the pelvis into the conjoined tendon give the abdominal wall its chief strength internal to the inguinal canal. The abdominal wall just internal to the external abdominal ring is strengthened by the aponeurosis of the transversalis muscle.

The base of the so-called conjoined tendon is the constricting agent in femoral hernia.

The so-called conjoined tendon was in no instance formed by a union of fibres from the internal oblique and the transversalis muscles in the subjects dissected. Judging from the usual anatomic arrangement this union seems quite impossible.

The external abdominal opening is situated between the dividing fibres of the aponeurosis of the external oblique muscle. The external abdominal ring is situated in the peri-aponeurosis which covers the external abdominal opening.

The article is supplemented with several drawings which enables one more clearly to understand the fine points of the discussion.

SURGICAL TREATMENT OF GOITRE, BASED UPON TWO HUNDRED OPERATIONS.—C. H. Mayo (*Medical Herald*, May, 1906).—Mayo thinks the region of the neck would offer as many inducements for the specialist as any other region of the body, and the thyroid gland presents, perhaps, more interesting and varied conditions than any other diseases of this region. A careful consideration of the development and anatomy is given by the author. The para-thyroids are associated with the thyroid in function but less understood than the thyroid. The glands are seldom seen in surgical work unless themselves diseased. In a review of the foreign literature by Bartlett it is stated that tetany could not be produced by complete removal of the thyroid glands as long as the para-thyroids were left behind. If, however, the para-thyroids were removed tetany was caused without cachexia. The frequency with which myxedema follows total removal and the known effects of over-secretion, together with the influence on the physical and mental development in youth, all favor the respect which physiologists and surgeons hold for it.

Malignant disease of the thyroid also occurs, accompanied usually by voice changes. Bloodgood states that when a differential diagnosis is possible it is probably too advanced to cure.

Operation upon exophthalmic goitre is frequently delayed by the patient till he is rendered so nearly moribund that the shock of operation induces a mortality prohibitively high. The injection, puncture and drainage methods of treating goitre are nearly as dangerous as radical operation and must be reserved for special indications.

In Graves' disease the operations upon the sympathetic ganglion are not as satisfactory as operations upon the gland itself. Serum treatment, the author thinks, has not been sufficiently worked out for us to experiment with the various samples upon the market.

In severe cases of Graves' disease it may be necessary to prepare the patient for some time. The heart seems to be the most important consideration in these cases. As a rule effort should be made to reduce the pulse to 120. Severe cases with a rapid pulse fluctuation with exertion or nervousness may be improved if put on extract of belladonna, grain 1-6 three to four times daily. This inhibits the activity of the gland. If there is no improvement in six weeks x-ray is added to the limit of tolerance. Improvement after operation in Basedow's disease is early. Nervousness and tachycardia are under control in two or three days. If there is not a large tumor we content ourselves with the removal of about one-half the gland with the isthmus. We should plan to leave about as much as would constitute a normal thyroid in quantity. The last fifty years has seen the mortality of these surgical operations reduced from 40 per cent. to 1 or 2 per cent.

Ether anesthesia preceded twenty minutes by a hypodermic of 1-6 grain morphia and 11-20 of atropine was used in the last 150 cases operated on. No deaths could be attributed to the anesthetic.

In a total of over 200 operations the Mayos have had but one death if exophthalmic goitres and malignancy be excluded.

ORTHOPEDICS.

IN CHARGE OF

NATHANIEL ALLISON, M. D.

REMARKS ON THE INFECTIONS OF JOINTS.—Lovett (*Boston Med. & Surg. Jour.*, May 24, 1906.)—In no department of joint disease has so great a disturbance occurred in the last few years as in the views regarding infections and their relations to joint affections. In general acute joint infections fall under four groups. (a) Acute osteomyelitis of the articular end of one of the long bones, involving the joint secondarily; (b) acute suppurative synovitis, or joint abscess; (c) acute plastic synovitis leading to joint obliteration; (d) acute serous synovitis. Tuberculous and chronic joint diseases are not considered in this classification. Acute osteomyelitis needs only to be mentioned. It is an acute suppurative inflammation of bone due to infection of the bone marrow by pyogenic organisms. The treatment of such cases consists in the earliest possible free drainage of the joint, with careful search for the infected area of bone, which should be opened. Acute suppurative synovitis, or joint ab-

scess, occurs as the result of various infective organisms and appears in infectious diseases of a wide range, such as cerebro-spinal meningitis, diphtheria, dysentery, erysipelas, epidemic parotitis, glanders, gonorrhœa, epidemic influenza, measles, pneumonia, pertussis, puerperal fever, pyemia, septicemia, scarlet fever, smallpox, tonsilitis, typhus fever, typhoid fever, after the use of sounds and catheters, and possibly in malaria. The treatment consists of free drainage of the joint as soon as evidence of suppuration can be established. Plastic, or ankylosing synovitis, in which an acute or severe joint inflammation is followed by partial or complete obliteration of the joint, without suppuration, is most familiar as an accompaniment of gonorrhea. Little can be said, however, of its etiology and no satisfactory treatment has been formulated. Acute serous synovitis occurs in connection with general infectious disease. It is often classed under the name of articular rheumatism. It does not differ clinically or pathologically from what is generally regarded as acute articular rheumatism. It may be produced by the injection of cultures of pyogenic organisms experimentally. It cannot as yet, however, be regarded as a specific infectious disease. Evidence rather tends to identify it as "an attenuated pyemia." Acute infections of the joints of undoubted bacterial origin occur in two grades of severity in connection with many infections. In many cases the source of infection cannot be established, and in such cases it is important to remember the function of the tonsils and the presence of pyogenic bacteria in the mouth as a ready source of infection. That acute articular rheumatism is an infection seems probable from bacterial and especially from clinical evidence; but this has not as yet been definitely proven.

TREATMENT OF PARALYTIC CLUB-FOOT BY ARTHRODESIS.—TOWNSEND (*Amer. Jour. of Orth. Surg.*, April, 1906).—The value of any operative procedure for the relief of disease or deformity can only be determined by careful and critical examinations of the results both immediate and remote. Arthrodesis of the ankle-joint for flail-foot was first performed by Albert, of Vienna, in 1879. All text-books of orthopedic surgery refer to the operation but say very little in regard to the results, or after-treatment. During the past two years many cases have been operated upon by the method of supplementing the tendon-transplantation by an arthrodesis. At the Hospital for Ruptured and Crippled in New York, operative work on paralytic club-foot may be divided into three stages: 1894-1899, arthrodesis; 1899-1901, tendon-transplantation; 1901-1905, arthrodesis, tendon-transplantation, or arthrodesis and tendon-transplantation combined. These cases were operated upon by the regular hospital surgeons and the results represent a fair average of what may be accomplished by different men. Arthrodesis is indicated in all cases where there is no power in the anterior or posterior leg muscles, or where power is so slight that a tendon-transference would be of no use. The failures have been much more numerous in younger than in older children. The reasons for this are anatomical. Ossification begins in the lower end of the fibula and tibia in the second year. The lower epiphysis of the fibula joins the shaft about the twenty-first year and that of the tibia about the eighteenth. Operations in very early life

not only have the disadvantage that we are operating largely on cartilage and a true bony ankylosis is most difficult, but we destroy the growth and development of the limb if we remove much tissue. The best results have been achieved in children over six.

The impression is that fibrous ankylosis is more likely to break down than to become bony. If after operation there is even very slight motion, apparatus should be continued for some time. Failures should be charged in many instances not to the operation but to the operator. The plaster-cast applied after the operation should be kept on at least three months, unless some reason exists for removing it sooner; and it should be properly applied, that is, firmly, evenly and closely. Sepsis is exceedingly rare under proper conditions and if life is not endangered will not adversely affect the result.

The relapses after arthrodesis are probably less frequent than after tendon-transplantation. The operation is an operation to be strongly recommended in suitable cases. It should be performed in cases where little or no power exists and at times should be aided by transference of tendons. Operations should not be performed on very young children and apparatus must be worn for a year or longer after operation.

TREATMENT OF CLUB-FOOT.—Schultze (*Zeit. fur Orth. Chir.*, Band XIV., Heft. 3-4).—The author presents modifications and improvements to the osteoclast described by him during the last year. This osteoclast as at present outlined is constructed as follows: A table, to the end of which is hinged a board which may be forcibly folded upon the club-foot by means of a mechanism. In addition to this, there is an apparatus for exerting traction upon the leg, so as to hold the sole of the foot against the hinged board of the osteoclast. The vital point in all operations for club-foot is to persist in the over-correction until the foot assumes a pronated dorsal flexed position.

CUBITUS VARUS, SHOWING DEFORMITY OF LATERAL CURVATURE OF THE SPINE CORRECTED BY OSTEOTOMY.—Peckham (*Amer. Jour. of Orth. Surg.*, April, 1906).—The author reports the case as follows: Boy nine years old; severe fracture about the elbow-joint four years ago. Was put up in acute flexion and union resulted with deformity of cubitus varus. While the deformity existed the boy was unable to stand straight, his spine assuming the position of lateral curvature. Osteotomy was done just above the condyles of the humerus. The carrying angle of the elbow was restored and the arm put in plaster of Paris. As a result of the correction of this deformity the boy now stands perfectly straight.

GENITO-URINARY SURGERY.

IN CHARGE OF

H. McC. JOHNSON, M. D.

THE CONDITIONS IN WHICH THE BOTTINI OPERATION IS INDICATED IN THE TREATMENT OF PROSTATIC HYPERTROPHY.—Willy Meyer (*Am.*

Jour. Urology, June, 1906.)—The Bottini operation is now generally recognized as having its strict indication in the treatment of prostatic hypertrophy. The encouraging results often obtained in cases where operation with the knife would, in all probability, have caused the death of the patient, serves to frequently make it the operation of choice. In many cases it is not only preferable to prostatectomy, but is the only alternative remaining to the patient. It is natural that we should, whenever feasible, allow our patients to profit by the radical removal of the gland. Still there are cases in which other chronic diseases, such as diabetes, advanced chronic heart trouble, or general debility, make it appear imprudent to take such a risk, or where the patient or his family is absolutely opposed to the use of the knife. It is here that the Bottini operation steps in.

In considering the comparative mortality, it must be remembered that many cases in which Bottini's operation is done are those in which prostatectomy is considered either inadvisable or impossible.

The author cites a case in which a suprapubic prostatectomy was done after the Bottini had failed to relieve. The grooves cut by the galvanocaustic knife were found to be entirely adequate, and each one was as large as the internal meatus, though in this case the valve-like action of the median lobe interfered with the urinary outflow. From the experience in this case and others, he insists upon prostatectomy in the presence of a median lobe if the patient's condition does not contraindicate it.

TREATMENT OF CHRONIC BLENNORRHOEA BY INSTILLATIONS OF SILVER NITRATE, FOLLOWED BY THE INTRODUCTION OF A ZINC SOUND.—Balzer and Tansard (*Ann. des Mal. des Org. urin.*, May 1, 1906.)—While in the treatment of chronic blennorrhœa, nitrate of silver as a topical application has been of signal service for a long time, yet following the lead of Carradi in the treatment of other conditions, such as syphilitic condylomata, the authors have taken advantage of the reaction of metallic zinc in the presence of nitrate of silver in the treatment of chronic affections of the urethra. When metallic zinc is placed in the presence of nitrate of silver, there is immediately produced a double decomposition of the silver salt. Nitrate of zinc is formed, and the silver is reduced to a metallic state under the form of a black body, which is deposited wherever the zinc has been in contact with the nitrate of silver. When a surface is penciled with the nitrate of silver, followed by the application of metallic zinc, there occurs a cauterization which has been used by various authors for different chronic inflammations.

In order to utilize this reaction in the urethra, an instillation of from ten to twenty drops of a solution of the nitrate of silver of from one to two per cent. is introduced into the anterior or posterior urethra, according to the place to be treated. The two per cent. solution should seldom be used, for the caustic action of the nitrate of zinc may become too strong. Immediately after the instillation of the silver, the zinc bougie is introduced into the urethra and kept there from one to two minutes, in order to allow time for the reaction to take place. This may be judged by two signs. First, by the increased pain given the patient, and, secondly, by the appearance at the meatus of the vaseline (with which

the sound has been lubricated) blackened by the reduced silver. If the silver solution is too concentrated, the nitrate of zinc formed may attack the mucous membrane too energetically, so that in general a one per cent. silver solution should be employed, and only exceptionally a two per cent. Examination of the urethra with the endoscope shortly afterwards, and the bulbous bougie a month and a half later, showed that no strictured condition resulted. The procedure is indicated in almost all cases of chronic blennorrhœa, anterior and posterior, with or without gonococci. It is advised in chronic urethro-cystitis and prostatitis, and suggested in prostatorrhœa and spermatorrhœa.

RENAL DECAPSULATION AND NEPHROTOMY IN THE TREATMENT OF GRAVE FORMS OF ECLAMPSIA. — Pousson and Chambrelent (*Ann. des Mal. des Org. Urin.*, April 15, 1906.) — The pathogenetic theory of eclampsia generally accepted today is that of a blood intoxication with a poison, the origin and nature of which is still undetermined. There is added to this toxæmia (and which aggravates its consequences) lesions of the liver and kidneys, that is to say, the two most powerful emunctories of the organism. Acting on this theory, the treatment consists in the employment of proper means to obtain purgation of the blood. These means consist of milk diet, water in quantities, enteroclyses, hypodermoclyses, etc. This combats the toxæmia, but neglects the lesions of the liver and kidneys, or attacks them only indirectly. Chloride of soda is considered harmful today in uræmic states, and the water even, which elevates the blood tension in the vessels of the kidney as well as in those of other organs, tends rather to aggravate the lesions by reason of the increased work that it places upon all the anatomical elements, and especially the epithelium.

In order to remedy these inconveniences of treatment by lavage of the blood, to render more effective the blood emissions, and to put an end to the nephritic lesions, surgical intervention has been thought of; not to substitute the medical treatment, but to be recommended as a new resource added to those we already possess. In grave intoxications having resisted medical means, particularly in those cases which are accompanied by oliguria and diminution of urea and other extractive materials, surgical intervention is justifiable, and becomes advisable when the histological examination of the urinary deposits shows elements characteristic of acute nephritis.

Edebohls' two cases of eclampsia, and one of the author's, terminating in cure, show the good effects of surgical intervention in this grave affection. But while the American surgeon in his cases did a double decapsulation of the kidneys, the authors added a right nephrotomy to this bilateral operation in their case. This incision of the kidney is of great advantage and adds much to the operation of decapsulation.

Reginald Harrison was the first to call attention to the relief of tension in cases of acute nephritis after nephrotomy, comparing this to that found to follow the relief of tension after incising the tunica of an inflamed testicle, or in cases of glaucoma. The authors suggest that, besides the relief of tension, the abundant flow of blood that is obtained by the incision itself relieves congestion of the kidney, modifies diapede-

sis, favors the outflow of the exudates and detached epithelial encumbered in the canaliculi intersected by the incision. This action may be kept up for days if a drain is put in, as this permits the altered liquids secreted by the kidney to flow outward, and renders possible antiseptic lavages.

OPERATION OF FREYER FOLLOWED BY AUTOPSY.—Loumeau (*Ann. des Mal. des Orig. urin.*, April 15, 1906.)—The author reports the case of an old prostatic who died three days after he had performed a prostatectomy by the method of Freyer, and upon whom he had the privilege of holding an autopsy. There was a cystic adeno-myoma of the prostate with a predominance of the muscular element. This muscular predominance and the manner of distribution of this tissue in each prostatic lobe gave a certain consistency which rendered it impossible to enucleate the hypertrophied gland either in separate lobes or in small nodules. All the tissues were extremely united, thus making it necessary to extirpate the gland in one piece, the urethro-prostatic mass coming away as a whole, leaving, however, small islands of the gland behind. In this procedure the internal sphincter and the prostatic urethra were removed as far forward as the veru montanum, the ejaculatory ducts being torn across. There was no sign of any infiltration of urine from the prostatic wound. It well shows the perfect drainage of the prostatic cavity through the method of Freyer, and that the perineal drainage of Fuller is not as indispensable as one would *a priori* think it.

Taking up the discussion between Fuller and Freyer as to the claims of priority, the author cedes the American the credit of having originated the operation and accredits Freyer with having modified it in an important manner, that is, in having instituted the special vesico-hypogastric drainage, and thinks the procedure should be designated *the operation of Fuller-Freyer*. It seems that after supra-pubic prostatectomy the prostatic cavity is re-formed in two different manners according to whether it is a subtotal prostatectomy with preservation of the prostatic urethra or a total prostatectomy comprising the gland and prostatic canal. In the first case, the walls of the prostatic urethra spread out until they become in relation with the wall of the prostatic cavity, forming somewhat of a funnel, the bowl of which is at the vesical neck and the narrow part continuous with the membranous sphincter of the urethra.

In the second case, the bladder and the prostatic cavity form together a cavity in the form of a reversed gourd, the large part corresponding to the bladder and the interior or smaller part to the prostatic region. In both cases the prostatic cavity is made a part of the vesical reservoir. In the latter case, the physiological neck is transported to the membranous sphincter, which is indeed the true sphincter of the bladder, and the integrity of which is indispensable to continence after prostatectomy. It appears that the prostatic region is recovered by mucous membrane which is continuous with that of the bladder. The author has had two deaths in eleven operations after this method.

GYNECOLOGY AND OBSTETRICS.

IN CHARGE OF

HUGO EHRENFEST, M. D.

OVARIAN PREGNANCY.—J. K. Kelly and A. L. McIlroy (*Jour. of Obst. and Gyn. Brit. Emp.*, June, 1906. SPECIAL NUMBER ON EXTRA-UTERINE PREGNANCY.)—The fact that ovarian pregnancy occurs is today positively established. It has been suggested that this form of ectopic pregnancy probably is more common than is generally believed, and this new case certainly advances a good argument in favor of such a suggestion.

The patient, a woman of 33 years, who has had five children, was operated upon, the diagnosis being extra-uterine pregnancy. In connection with the left ovary a blood cyst was found of about the size of a plum. This ovary and the left tube were removed. Quite accidentally this specimen was examined several months later. The detection of chorionic villi led to the careful microscopic examination of the whole ovary. The diagnosis of ovarian pregnancy could be positively made. The whole ovisac was completely composed of ovarian tissue. The presence of lutein cells in the tissue immediately surrounding the fetal epiblastic structures proved that the fertilization of the ovum had occurred within a Graafian follicle. That the pregnancy originated within the ovary thus is apparent, the tube being normal and free from any adhesions to the ovary.

The occurrence of blood cysts in the ovary is common and these cysts hardly ever are examined carefully for products of pregnancy. Even in this case, where a diagnosis of ectopic pregnancy had been made and operation had been performed on that diagnosis, the specimen at first was put aside as a sample of mistaken diagnosis. How often such blood cysts in reality are ovarian pregnancies could be easily ascertained by a systematic examination of all such specimens.

A CLINICAL EXPERIENCE OF ECTOPIC PREGNANCY AND ALLIED CONDITIONS.—Haultain (*Ibidem.*)—In detailing his personal experience with extra-uterine pregnancy, the writer points to the difficulty of diagnosis on account of the irregularity of the symptoms, and emphasizes the frequency with which it is simulated by other conditions and the ease with which it is mistaken for an ordinary abortion. The necessity of a thorough pelvic examination in every case of abortion becomes obvious. Of special interest is the writer's strict belief in "the absolute necessity of operation as soon as even a probable diagnosis of ectopic pregnancy has been made."

EXTRA-UTERINE GESTATION ASSOCIATED WITH UTERINE FIBROMYOMATA.—Taylor (*Ibidem.*)—Although our knowledge of the etiology of ectopic pregnancy is yet indefinite and uncertain, still it has been somewhat generally held that conditions which mechanically interfere with the downward passage of the ovum from the Graafian follicle to the uterine cavity play a not unimportant role in the causation of this con-

dition. Thus some observers believe that myomas, or other tumors, may so compress the tubal lumen as to interfere with the migration of the ovum through the tube. The occasional association of myoma with tubal pregnancy offers another point of interest. These conditions may simulate each other, and the differential diagnosis, or the diagnosis of the co-existence of both anomalies, may become a matter of considerable difficulty. Taylor describes an interesting case of this sort and appends the histories of similar cases recorded in literature.

THE DIAGNOSIS OF EARLY EXTRA-UTERINE PREGNANCY. — Milligan (*Ibidem.*) — The advance of our knowledge of the symptomatology of early ectopic pregnancy is clearly proved by the increasing frequency of the correct diagnosis: Unruptured Tubal Gestation. In discussing in a very thorough manner the diagnosis of this condition, the writer divides the subject thus: I. What the patient tells: (1) in her own words; (2) in answer to minute inquiries (a) with regard to pain, (b) with regard to the bleeding from the vagina. Important points in this connection are: The color of the discharge, its persistence and the presence of membranes. II. What may be expected to be found on examination. III. The most likely things that may be confused with an extra-uterine pregnancy, viz: (1) intra-uterine pregnancy, (2) retroversion of the gravid uterus, (3) inflammatory and other acute abdominal conditions (pyosalpinx, cellulitis, appendicitis, rupture of any abdominal viscus and intestinal obstruction), (4) tumors (ovarian, fibromyoma, hematocele, extra-peritoneal hematocele or hematoma, and hemato-salpinx).

ABDOMINAL PREGNANCY.—Marsh (*Ibidem.*)—This is a rather unique case. The pregnancy progressed apparently to full term. Twenty-seven months later the writer removed the fetus piecemeal from the rectum, into which it had broken. All the parts of a fully-developed child were found, except one arm

RECENT WORK ON TUBAL GESTATION (1902-1906).—Andrews (*Ibidem.*)—The writer presents an interesting and evidently complete critical review of fifty of the newer contributions to the following three topics: Anatomy of the Pregnant Tube; Causes of Tubal Abortion and Rupture; Etiology of Tubal Pregnancy.

PEDIATRICS.

IN CHARGE OF

ALFRED FRIEDLANDER, M. D.

EXAMINATION OF THE URINE IN INFANTS.—Chapin (*Archives of Pediatrics*, May, 1906) reports the results of the routine examination of the urine in a series of cases in infancy. In 86 cases of disturbance of the gastro-intestinal tract, of various kinds and degrees of severity, albumin was present in 75 cases. In 37 of these there were casts. In this

series there were 16 deaths, 14 of these cases had albumin, 10 albumin and casts. Indican was present in 22 of 32 cases, in which it was looked for.

In 57 cases of pulmonary diseases of various kinds, albumin was present in 49. Thirty-two of these cases also had casts. In this series there were 17 deaths, 15 having albumin, 10 albumin and casts.

In 45 cases of general illness there was albuminuria in 31.

Of 11 cases of cerebro-spinal meningitis, 9 had albumin and casts.

Chapin believes that albuminuria is very frequent in infancy, that in many cases albumin (and even casts) merely point to slight congestion with irritation of the renal tubules. The urine of infants may contain both albumin and casts, without indicating any grave renal lesion, and without offering a grave outlook. In the discussion which followed the reading of this paper, the general consensus of opinion agreed with these views.

SALT-FREE DIET IN SCARLET FEVER.—Pater (*Rev. Mens. des de l'Enf.*, April, 1906) submits a preliminary report of a series of cases of scarlet fever, in which instead of the usual strict milk diet, a varied but absolutely salt-free diet was given. The value of the salt-free diet has been abundantly proved in the treatment of nephritis and certain forms of dropsy, and such a diet would appear to have a distinct prophylactic value against scarlatinal nephritis.

The diet was instituted as soon as the initial fever had subsided, and consisted of bread, without salt, rice, puree of potatoes, eggs (all without salt), with butter, light desserts and milk. Careful studies of the weight curve, and of the urine were made in all cases. The author concludes that the salt-free regimen is without danger in scarlet, that it is as good a prophylactic against nephritis as the absolute milk diet, and much more agreeable to the patient. In all the cases there was an initial febrile albuminuria, which disappeared at once, when the diet was given. This regimen by strengthening the patient shortens the period of convalescence, and puts the patient in better condition to withstand secondary infections or complications.

THERAPEUTIC USE OF TUBERCULIN IN CHILDHOOD.—Ganghofner (*Jahrbuch f. Kinderhilk.*, May, 1906) reports twelve cases of tuberculosis in childhood treated with tuberculin. The cases were under observation for long periods of time, and were carefully studied.

Ganghofner uses the old tuberculin, and begins with very small doses, having the rate of increase very small also.

In a boy of six, with unilateral pulmonary lesion there was very marked improvement. Twenty-nine injections were given, varying in amount from 1-10 to 5 mg.

In a girl of twelve with pulmonary lesion and laryngeal tuberculosis, 13 injections were given, varying in amount from 1-10 to 8-10 mg. The laryngeal lesion showed very decided improvement, but the pulmonary lesion did not. Of 7 cases of scrofula all advanced, there was marked improvement in three. Three of the other four reacted very intensely to even very small doses (1-100 mg.). One of these children died, and

at the autopsy, the tubercular lesions were found to be very much more advanced than they had been supposed to be *intra vitam*.

Two cases of tubercular peritonitis showed very distinct improvement. Ganghofner believes tuberculin in small doses to be without danger, and he thinks that the treatment is deserving of an extended trial.

BACTERIOLOGY OF CEREBRO-SPINAL MENINGITIS.—Robinson (*Amer. Jour. Med. Sci.*, Apr., 1906) studies 15 cases carefully, the organism being isolated from the spinal fluid, circulating blood, pus from the conjunctiva, and from the central nervous system at autopsy, agreeing in all respects with the *diplococcus intracellularis meningitidis* of Weichselbaum. It was isolated in pure culture from the spinal fluid of the 14 cases in which puncture was performed, and is to be considered the causal agent in all cases. The organism was obtained from the circulating blood in two of four investigated cases, but is probably only an occasional invader of the circulating blood. It may be present for many days in the blood, and does not occur only as an agonal invader of the blood. The diplococcus may occur in the pus of purulent conjunctivitis, a complication not infrequently seen in meningitis. It was isolated from one of the two cases in this series, which showed this complication.

Secondary lung infections with pyogenic organisms are frequent, and a terminal broncho-pneumonia was found in 5 of the 6 cases which came to autopsy, all of which showed the presence of pyogenic cocci.

NEUROLOGY.

IN CHARGE OF

SIDNEY I. SCHWAB, M. D.

THE MENTAL DISTURBANCES OF ALCOHOLIC NEURITIS.—Coriat (*American Jl. of Insanity*, No. 4, 1906.)—This paper is an attempt to consider the mental disturbances found in alcoholic neuritis other than those described under the term Korsakow's disease. Several cases are described by the author, and, after a review of the literature on the subject, he adds the following as a resume of his findings: The neuritic disturbances may take on several distinct varieties, either as a central or as a peripheral eye-muscle palsy. They may exist in the form of psychosis described by Korsakow, but which may also occur without any sign of a peripheral neuritis, and may be caused by other factors besides alcohol. A delirious state strongly resembling delirium tremens, but of a very acute onset. A very acute delirium of Karsakow's type with isolated neuritic symptoms and progressing rapidly towards recovery. A true delirium tremens which may shade into a fabricating psychosis. A group of cases with protracted course, showing a marked depressive effect with suicidal tendencies, strong religious ideas, episodes of fear and anxiety, and a marked hallucinosis. Pure acute hallucinosis in which the neuritic pains may form the basis of various delusional interpretations analagous to the parasthesias of the alcoholic paranoid states without neuritic signs.

Depressive delirious states of a very rapid course, with marked physical symptoms of polyneuritis. A fabricating delirium of an acute type. A group of cases resembling at first an alcoholic deterioration, with marked recent memory defect, running a rather slow course, but with almost complete recovery parallel with the improvement in the physical signs.

TOXIC POLYNEURITIS IN A CONSUMPTIVE.—Salomonson (*Neurologisches Centralbl.*, No. 10, 1906.)—This is the report of a case of polyneuritis in the course of a chronic tuberculosis of the lungs. The neuritis in this case might have been explained on the ground of a tubercular infection, as there have been several such instances reported in the literature, but the author, in this case, inclines to the belief that the neuritis was due to the toxic effects of the medicine taken, which was found to be phosphoric creasote. This case might serve as a warning against the use of this dangerous combination, as the toxic effects are coming to be well known.

THE ABDOMINAL REFLEX IN ENTERIC FEVER.—Rolleston (*Brain*, Part 1, 1906.)—The value of the abdominal reflex was first pointed out by Rosenbach in 1876. This reflex has not attracted as much attention as it really deserves. The present paper is based upon observations made on sixty patients, all of whom were certified on admission to be suffering from typhoid fever. During the acute stages the observations were made daily. The following conclusions are noted as the result of the work: (1) The abdominal reflex is affected in a very large number of cases of enteric fever, the percentage of cases in which it is entirely lost exceeding those in which its normal activity is diminished only. (2) From its absence under the age of fifty being confined to certain nervous diseases and acute abdominal conditions, notably appendicitis and enteric fever, the absence of the abdominal reflex in a given case of continued pyrexia in a patient below fifty is of considerable diagnostic value. (3) The comparative nature of the affection of the abdominal reflex in enteric fever is a striking contrast to the more chronic affection of the knee and ankle jerks in diseases associated with peripheral neuritis, i. e., diphtheria. (4) Return of a lost reflex and a resumption of its normal activity are a valuable indication of commencing convalescence.

These conclusions, the more important of those noted, serve to show that the abdominal reflex is worthy of more earnest study.

OPHTHALMOLOGY.

IN CHARGE OF

JOHN GREEN, JR., M. D.

The papers abstracted below were presented to the Ophthalmic Section American Medical Association, June 5-8, 1906.

A MORE UNIFORM STANDARD FOR THE ILLUMINATION OF VISUAL TEST-TYPES.—C. H. Williams, M. D., Boston.—“If the light reflected from

the test-type card is too bright the retina soon becomes fatigued, there is more irradiation and the results obtained are less reliable than when a weaker illumination is used; on the other hand, if the light is too weak, we do not get a proper measure of the acuteness of vision under the conditions of ordinary use. We need some standard which will come between these two extremes, which will be constant, so that the acuteness of vision of any individual today can be properly compared with his record of any previous time and which will allow the reported records of one examiner to be compared with those of another."

In order to secure an unvarying illumination to meet the conditions set forth in the preceding paragraph Williams has had constructed a test card cabinet as follows: On either side of a rectangular opening, three feet wide by four feet high, is arranged a vertical column of small incandescent lamps of 5 candle power each, eight on each side, made to burn four in series on a current of 110 volts. The lamps are shielded from the patient's eye by a blackened tin screen. The test-types printed on yellowish paper are hung one foot behind the plane of the lamps.

In order to note the point where light reflected from a card becomes so much reduced in comparison to that reflected from the surface of the letters that the letters can no longer be read, Williams has devised a special form of photometer. This "simplex" photometer consists of two developed glass negatives cut in strips about six inches long by three-quarters of an inch wide, placed face to face and mounted in a metal case. The film on each negative increases in density in a geometrical ratio from the clear end toward the dense end. To measure the brightness of a light, the photometer is held in front of the eye so that the light to be measured is seen through the clear end. The glass is then moved so as to bring the denser portions of the film in line with the light until a point is found where the light is just extinguished by the absorption of the film. The amount of light cut off by the film at this point measures the intensity of the light tested, and can be read off on a scale attached to the glass photometric negative. Another instrument, the "comparison" photometer, was devised for the purpose of comparing different portions of the film with a series of standard shade glasses, thus permitting accurate marking of each individual photographic strip.

THE DIPLOBACILLUS OF MORAX-AXENFELD.—Brown Pusey, Chicago.—

The recognition of this organism which is capable of giving rise to varying clinical conditions, from the most trivial conjunctivitis to the most serious ulcer of the cornea, is of very great importance, the more so as we have in the salts of zinc a specific remedy for diplobacillary infections.

Pusey's experience leads him to believe that this form of infection is widespread, geographically in the United States. It seems probable that, as Zur Nedden has recently suggested, the sensitiveness of the cornea for this infective agent is not everywhere the same; that, in certain districts, as the result of long existence and wide distribution, its virulence has been greatly attenuated. In this country the organism certainly finds much virgin soil and hence may be expected to give rise to the more serious forms of infection.

The disease most typical of infection by this germ is a chronic blepharo-

conjunctivitis. The edges of the lids are red, particularly at the outer angles, the skin below the margins being macerated by the overflowing of the tears. The edges of the lids are the seat of a scaly deposit. The palpebral conjunctiva is not much swollen and only slightly hyperemic. The discharge is slight. Complaint is made of burning, smarting and itching of the lids.

In contrast with these typical forms Pusey records a violent case of acute conjunctivitis simulating clinically gonococcal infection, and a case of extensive corneal ulcer with iritis and hypopyon (not to be distinguished clinically from serpent ulcer due to the pneumococcus) in both of which diplobacilli were the causative factors. Both responded promptly to treatment with zinc solutions.

Pusey suggests that the organism be looked for before any cutting operations are done on the cornea and that every precaution (such as wearing goggles, confinement to the house, etc.) be taken by patients with diplobacillary conjunctivitis lest an accidental abrasion of the cornea give rise to serious infection.

As far as known the organism is pathogenic for the human eye only. It varies in size, averaging one micron wide and two microns long. It grows well on Loeffler's blood serum. Taken from this medium the bacilli show great variations in shape and size. They occur in pairs, the ends slightly rounded; also in short chains. They stain with all ordinary dyes and are negative to Gram.

Secretion is scanty, as a rule, but usually a deposit containing enormous numbers of bacilli may be found on the caruncle. Growth occurs only at blood temperature and on culture media containing human body fluids. On Loeffler's blood serum in 16 to 24 hours the bacilli form holes which grow larger and may run into one another. If the growth is allowed to continue the culture media may be almost completely liquified. This organism must be differentiated from the bacillus of Petit, which is distinguished by growing abundantly on all usual culture media and in liquifying gelatin.

* THE STAINING AND EXAMINATION OF THE BACTERIA OF THE EYE BY SIMPLE PRACTICAL METHODS.—E. S. Thomson, New York City.

Preparation of Films.—A small amount of pus from the conjunctival cul-de-sac is picked up on a platinum wire loop and spread thinly (without rubbing) on the slide.

Loeffler's methylene blue is the most generally useful stain. The solution is poured over the slide and rocked back and forth until the smear is colored a fairly deep blue. The slide is washed, dried and examined with an oil emersion lens. Carbol fuchsin in five per cent solution may be used in the same way. For counter-staining Wright's modification of Jenner's blood stain (eosinate of methylene blue) or Goldhorn's polychrome methylene blue, is recommended.

Gonococcus.—In the early stages of gonorrheal conjunctivitis the clusters of diplococci are perfectly characteristic. They stain well with Loeffler's methylene blue or with either of the counter-stains. If the clinical appearances are not characteristic and the smears show many forms lying outside the cells, decolorization by Gram's method is

resorted to. If the diplococci decolorize we have the gonococcus, the diplococcus of meningitis are rarely the micrococcus catarrhalis. The meningococcus is rare in the conjunctiva and causes a much less severe inflammation. Many diplococci will be found lying outside the cells and numerous varying forms will be present. If doubt still remains, cultures alone will decide the diagnosis. The micrococcus catarrhalis may at times be confused with the meningococcus.

Koch-Weeks Bacillus.—The detection of this organism in smears is fairly easy. They appear as short fine rods (0.8×10 , micromillimeters) lying between and inside the pus cells, and frequently lying end to end in the shape of the letter V. They stain with difficulty, best with Ziehl's carbol fuchsin (one part to water nine parts), or with Loeffler's methylene blue applied with gentle heat. This organism may be confounded with (1) the influenza bacillus of Pfeiffer; (2) the influenza bacillus of conjunctivitis of Müller; (3) the pseudo-influenza bacillus of Zur Nedden. All of these forms require a hemoglobin medium which is not necessary for the culture of Koch-Weeks bacilli.

Morax-Axenfeld Diplobacillus.—Large bacilli (2×1 micromillimeters), which stain well with aniline dyes and are decolorized by Gram. Marked cultural differences serve to differentiate it from the bacillus of Petit.

Klebs-Loeffler Bacillus.—As there are no differential stains of reliability, cultures are invariably necessary.

Xerosis Bacillus very closely resembles bacillus of diphtheria, both morphologically and culturally. The question of differential diagnosis is difficult.

Pneumococcus of Fraenkel and Weichselbaum.—When typical it has the shape of two cartridges placed end to end and surrounded by a pale capsule; but as its "chief characteristic is variability" cultures are often necessary. It is best stained with weak carbol fuchsin, gently heating the slide during the staining.

Tubercle Bacillus.—A small amount of suspected conjunctival tissue is excised, "shredded" in salt solution, and then spread on slides. Scrapings from a corneal ulcer are treated in the same way. Stain with carbol fuchsin and methylene blue. Tissue preparations are stained, preferably with toluidin blue, decolorizing with alcohol. Not infrequently the germ cannot be discovered even in cases of undoubted infection.

LARYNGOLOGY AND OTOTOLOGY.

IN CHARGE OF

WILLIAM E. SAUER, M. D.

THE ANTITOXIN TREATMENT OF HAY FEVER.—Somers (*Laryngoscope*, May, 1906). After discussing the different types of hay fever and his experience with the Dunbar antitoxin during the last three years, the author draws the following conclusions:

1. The antitoxin produces prompt and positive amelioration of the symptoms of hay fever in a large majority of cases.

2. In a smaller number, this is accompanied with complete disappearance for that particular season.

3. Where slight or no action is seen, it is due to improper administration; while in a very small number some idiosyncrasy is undoubtedly active.

4. When results are obtained, it favorably influences all the manifestations of hay fever in the larger number of cases, while in a smaller class, one or more of the symptoms seem to be most markedly influenced.

5. When given during the attack of hay fever irrespective of its severity, it produces palliation rather than cure.

6. When successfully used during one season, it does not prevent the reappearance of the disease the following season; although there is reason to believe that a slight influence in modifying future attacks does exist.

7. The antitoxin is effective in both powder and liquid form, but the latter is preferable, as it is staple, does not require a preservative, and is more convenient for the patient.

A SIMPLE MEANS OF RELIEVING THE EARACHE OF ACUTE OTITIS MEDIA.—Neumann (*St. Petersburger Medizinische Wochenschrift*, April 7; *Rev. N. Y. Med. J.*, May 19, 1906) has found a much more effective means of attaining the desired result. It consists in introducing into the external auditory canal compresses of cotton moistened with ordinary lead water, which are also applied to the concha and its vicinity. This solution is made extemporaneously by adding water to Goulard's extract forming *eau blanche*. This solution is heated to the boiling point, and a small piece of absorbent cotton, rolled into the shape of a cone about an inch long, is dipped into it, and then introduced into the auditory canal. The concavities of the external ear are next to be filled with small compresses, which are also moistened with lead water and applied as hot as the patient can bear it. Finally, the entire ear and surrounding parts are covered with three compresses, dipped in the same solution, but from which the excess of moisture has been removed by expression. One of them is placed in front of the ear, the other in the space behind the ear, and the third above the preceding two. The relief afforded by this is so great that the patient is enabled to await with tranquility the time for paracentesis or the spontaneous opening of the drum.

SOME ANATOMIC AND PHYSIOLOGIC CONSIDERATIONS OF THE FAUCIAL TONSIL.—J. Gordon Wilson (*Jour. A. M. A.*, May 26, 1906.)—In this paper the author discusses some of the points bearing on the surgical anatomy and the physiology of the tonsil. The normal size of the tonsil is hard to determine, since few have escaped some irritation and inflammation. Its activity has been demonstrated at the end of fetal life, not only by the multiplication of lymphocytes in the follicles, but by the infiltration of leucocytes with the overlying epithelium. It is well developed at the end of the first year, but apparently does not reach maturity and can only be said to be definitely developed about the fifth year. The tonsil is enveloped in a capsule of connective tissue, which is normally 1 mm. thick. From the capsule bands go off between the lymph-

follicles in which lie the blood vessels and lymphatics. Wilson believes the principal blood supply in man comes from the facial, either through a distinct tonsillar artery or more commonly from the tonsillar branch of the ascending palatine branch of the facial. The hemorrhage which occurs at times in tonsillar operations is due to an injury to the ascending palatine artery. Hemorrhage may also occur from injury to the branches of the lingual and superior palatine artery. In studying the secretions from the tonsil, the first fact that presents itself is that we have here a definite organ actively engaged in the production of lymphocytes. The germ centers of the follicles contain many cells undergoing mitotic division. From these follicles the lymphocytes may pass directly into the lymphatic system or through the mucous membrane into the mouth. As far as our present knowledge goes, the first do not appear to differ in any way from those secreted by the follicular glands. As for the latter, we have no definite knowledge, as it may be more of an excretion than a secretion.

ON REGIONAL ANESTHESIA OF THE LARYNX.—Frey (*Archiv. fuer Laryngologie und Rhinologie*, Band. 18, Heft. 2.)—After discussing the various methods of anesthetizing the larynx, the author describes a new method, which consists of hypodermic injections of weak solutions of cocaine in the region of the superior laryngeal nerves as they enter the thyro-hyoid membrane. The technique is as follows: The patient sits in a chair and the operator stands at the patient's left while palpating the left side of the neck, in order to find the greater horn of the hyoid and the upper horn of the thyroid cartilage. Midway between these two points the hypodermic needle is inserted, holding the syringe horizontally and going directly backward, about 1 cc. of a one to one-half per cent. solution of cocaine, containing ten per cent. of adrenalin chloride is injected. The same amount is injected in the other side. Anesthesia is complete in about ten minutes. The author has employed this method in thirty cases and concludes as follows:

1. It is possible to arrest the function of the superior laryngeal nerve by deep injections of a one per cent. solution of cocaine and adrenalin at the point where it enters thyro-hyoid membrane and thereby obtain a regional anesthesia of the larynx.

2. This method has the advantage that relatively small and accurate amounts of cocaine with adrenalin can be employed. The anesthesia is complete.

3. The duration of the anesthesia averaged about twenty minutes.

4. One disadvantage is that it requires some time before the anesthesia is complete.

5. The author believes that the method is suitable for all endolaryngeal and intratracheal manipulations, including bronchoscopy. It is specially indicated in cases where the application of cocaine on an applicator is not well borne. Also in cases of foreign bodies.

DERMATOLOGY AND SYPHILIS.

IN CHARGE OF

MARTIN F. ENGMAN, M. D.

SOME CLINICAL ASPECTS OF SYPHILIS.—Wild (*British Jl. of Dermat.*, May, 1906.)—The basis of this paper is 1,050 consecutive cases of syphilis. The writer recites some interesting cases from this abundant material. From his observations in congenital syphilis he concludes that mercury is more valuable than iodide, though the lesions may be ulcerations of a tertiary type. He says that we are apt to look upon syphilis in children as congenital, but we often forget the possibilities of children acquiring syphilis from other members of the family. He calls attention to the co-existence of syphilis and psoriasis and other rashes of non-specific character. He looks upon frambœsial lesions in syphilis as papules infected by some pyogenic organism, probably a streptococcus. He has examined the pus from several cases and found streptococci. Erysipelas is a frequent secondary involvement of this form of syphilitic lesion. He is impressed with the frequency of the co-existence of trauma and syphilis, and he suggests that trauma is often an exciting factor. This most frequently occurs in lesions below the knee and on the hand, especially the palms and soles, and are exceedingly hard to cure. The various forms of seborrhœic dermatitis and acne rosacea are the commonest inflammatory lesions which complicate tertiary syphilis and often seem to precede and determine the specific outbreak. He considers smoking a contributing factor to syphilitic leukoplakia lingualis. He finally wishes to refer to the curious fact that in nearly 600 cases of tertiary syphilis affecting the surface of the body, only three showed the symptoms of disease of the nervous system. He says as the skin and the central nervous system are both epiblastic tissues, it is interesting to inquire whether the severe skin lesions may not possibly exercise a beneficial effect by sparing the more delicate and important tissues of the nervous system from the influence of the syphilitic poison. In discussing the treatment of syphilis he says the difficulty in estimating the relative value of different methods is largely due to the fact that most cases of primary and secondary syphilis will recover sooner or later spontaneously without any treatment whatever. This tendency to recover naturally is undoubtedly the explanation of the great success claimed for various methods of treatment, especially those in vogue in England during the first quarter of the last century, when there was a great reaction against the use of mercury. He remarks that it is a curious fact that sarsaparilla and some other drugs which have had a reputation as anti-syphilitics in their native countries should all contain saponius, a group of toxic glucosides which have a very powerful and peculiar action upon the blood corpuscles. Some of the saponius are not very staple bodies, and as regards sarsaparilla he has found that the dry drug varies widely in its activity, as shown by the saponic action, and on keeping it may become inert. While he admits that many cases of syphilis will recover without mercury, he has no doubt whatever that the duration and severity of both primary and secondary symptoms are much lessened by its use, and that above all the liability of tertiary le-

sions, though not entirely prevented, is much diminished. He believes that mercury should be given until slight soreness and swelling of the gums is produced, and so long as this is produced it does not matter how the mercury is administered. In ordinary cases he prefers alimentary administration. He says the action of iodides in syphilis does not appear to be of a specific nature, but only a part of a more general action in absorption of the lower organized cellular infiltration, and the indication for iodide is the presence of cellular infiltration to promote absorption. He calls attention to the feature of treating only the disease to the neglect of the patient. Therefore, the general health should be closely watched.

REPORT OF TWO CASES OF LARVA MIGRANS, WITH SPECIAL REFERENCE TO THE TREATMENT.—Hutchins (*Jl. of Cut. Dis.*, June, 1906.—The first case was that of a boy who contracted the trouble in Florida. The larva progressed about an inch a day, the inoculation being upon the ulnar side of the palm. The second patient was a farmer from North Georgia. He developed a number of burrows on the leg. The author used an injection of cocaine behind the larva and the subsequent injection of a few drops of chloroform. This, to him, seems the ideal treatment.

ERYTHEMA PERSTANS.—Wende (*Jl. Cutan. Dis.*, June, 1906.—The writer presents in this paper two cases of erythema perstans occurring under his observation, and some similar cases previously reported by various authors. He concludes from his observations that in this condition we are dealing with a variety of skin affections which may be included under the general name of erythema perstans and which have points both of differences and of similarity. In some there are simply chronic inflammatory patches, in others diffuse patches of papules or nodules; frequently evolution begins with the center and leaves annular or gyrate figures. There seems to be no law governing their duration since they may last weeks, months or years, or during the entire lifetime of the patient. The etiology may still be considered as obscure, although the suggestions relating thereto are numerous. No age is exempt; cases have been reported in children and in those advanced in years. The condition seems to be more frequent in men than in women. The study of the cases reported shows that the condition may be caused by intestinal toxemia, gouty or rheumatic diathesis and atmospheric changes. The limited number of microscopical examinations that have been made reveal slight differences. In all the cases we have a superficial inflammation, dilatation of blood vessels, infiltration of cells, and association of edematous conditions.

GNOCOCCIC WARTS.—Pagliaro (*British Jl. of Dermat.*, May, 1906.)—This patient was a woman, 56 years old, who had had a vaginal discharge which caused intense itching of the parts for a year. Recently whitish, fleshy masses formed upon the labia, the size varying from that of a minute seed to a lentil. There were also a few warts upon the perineum. The growths were removed nine times before they finally disappeared. In the scrapings, colonies of gonococci were found in the pus and in the tissues of the epithelium of the warts.

MEDICAL LAW AND MEDICAL JURISPRUDENCE.

IN CHARGE OF

IRVIN V. BARTH, LL. B.

WHAT CONSTITUTES PRACTICING MEDICINE.—NO VESTED RIGHT IN THE PRACTICE OF MEDICINE.

State of Missouri vs. John M. Davis (January call 1906, Supreme Court of Missouri.)

Defendant was charged with having practiced medicine in the State of Missouri without a license in the month of December, 1904. The defendant, who lived in Hamilton, Ill., came to Missouri, secured quarters at a hotel in Memphis, Scotland County, Missouri, and then and there held himself out as a doctor of medicine. One H., suffering from blood poisoning, requested his services. Defendant examined the patient, diagnosed his case and prescribed for him, soon thereafter returning to Illinois. The prescription for medicine was in the form of a blank, which was required to be sent to the State of Illinois and thereupon the defendant would send the bottle by express. H. took the medicine according to defendant's directions and according to the directions on the bottle, paying for the treatment at the rate of \$5 per month. Defendant came to the hotel in Memphis for the purpose of seeing H. once every month.

Defendant was not a registered physician in Missouri, nor had he been licensed by the State Board of Health. His claim to the right to practice in Missouri was based upon the fact that before he moved to Illinois, as early as 1857, he had followed his profession in St. Louis and had secured a vested right in the practice, which the act of 1901 could not constitutionally disturb.

The court held, (1) That defendant was practicing medicine in the State of Missouri as contemplated by the statute, and, (2) That the statute did not deprive defendant of a vested right and is constitutional.

"The practice of medicine as contemplated by the provisions of the statute governing that subject," said the court, "may consist only of an examination of the patient, diagnosing the cause of the trouble complained of, or by one professing to be a physician, seeing the patient at stated intervals and the indication and prescribing of remedies to be applied, and the acceptance of pay for such services. The mere fact that the remedies indicated and prescribed are sent from another state does not negative the idea that the defendant was practicing or attempting to practice medicine in this state. It would not be an uncommon occurrence for a regular practicing physician of this state to examine his patients, diagnose the cause of their illness, and then say to them, 'The remedies I indicate and prescribe, you must obtain from the State of New York.'"

With reference to the constitutionality of the question involved, the court said: "It is apparent that the General Assembly of Missouri, in the enactment of the provisions of law regulating the practice of medi-

cine and surgery in this State, intended to fix a standard as to fitness, skill and qualification, which would authorize the practice of that profession. This law does not undertake to deprive any person of a vested right, for there can be no such thing as a vested right in the practice of medicine. It does not undertake to suppress or prohibit the practice of medicine or surgery, nor to prohibit any particular person from practicing as a physician or surgeon, but it simply undertakes to require the necessary and essential qualifications for that purpose. . . . It is clearly manifest that the defendant had no vested right to practice medicine in this state by virtue of his former practice here in 1857. Upon returning to this state to practice his profession, his qualifications, fitness and skill to do so must be judged by the law in force at the time he so returns and before he will be authorized to engage in the practice of his profession and reap the rewards from such practice, there is no reason why he should not comply with the conditions imposed upon him by the law in force at the time he so undertakes to engage in the practice."

NOTE.

The prosecution in the case decided was founded upon the act of 1901, which continues to be the statutory law of Missouri regulating the practice of medicine, surgery and midwifery. The law governing prior to that time was passed during the session of 1883. By section 9 of the act of 1883, a statutory definition of what constituted practicing medicine was made in the following:

"Any person shall be regarded as practicing medicine within the meaning of this act, who shall profess publicly to be a physician, and to prescribe for the sick, or who shall append to his name the letters 'M. D.'" The act of 1901 repealed entirely the act of 1883 and failed to offer any other statutory definition. This omission is to be regretted—it takes away from the act much of its effectiveness, creates an uncertainty and opens the way for evasion, such as was attempted by the defendant in the above.

That no man has a vested right in the practice of his profession has been long established by the best considered cases. New conditions may always be imposed. The terms and conditions of the act of 1901 applied to all persons "except physicians now registered." The act of 1883 contained the proviso "that the provisions of this act shall not apply to those that have been practicing medicine five years in this state." The constitutionality of that provision was sustained by the Supreme Court of Missouri in the case of *State vs Hathaway*, (1893), 115 Mo., 36.

WHEN MEDICAL PROOF IS UNNECESSARY.

State vs. Bateman, May, 1906, *Supreme Court of Missouri*.

Medical proof of the actual perpetration of a rape is not necessary, when there is evidence of the crime as offered by the prosecuting witness and when the defendant, by his own admission, establishes, the fact that he had intercourse with the prosecutrix as charged, although it may have been with her consent.

MALPRACTICE—DEGREE OF SKILL, REQUIRED.

Dye vs. Corbin (March, 1906, *Supreme Court of Appeals of West Virginia*), 53 S. E., 147.

Suit for ten thousand dollars damages for malpractice in the diagnosis and treatment of an injured ankle. Defendant was a practicing physician of Ritchie County, West Virginia. After examining plaintiff's ankle, defendant stated that same was dislocated, but not broken. Though plaintiff requested it, defendant refused to procure another physician and to administer an anæsthetic. Defendant bandaged the ankle and some days after placed the limb in a cast of plaster of Paris, telling plaintiff that he might then go about wherever he pleased. The limb began to pain and several months thereafter plaintiff consulted two doctors in Cincinnati, who testified that "the head of the fibula was broken off and was turned backwards." An amputation afterwards became necessary.

The only evidence offered by plaintiff with reference to the alleged malpractice proper was the testimony of the two Cincinnati physicians. Nothing more was elicited from them than that the treatment was attended with more pain to the patient, because an anæsthetic was not administered.

The court held that in the absence of a special contract, defendant is "only required to exercise such reasonable and ordinary skill and diligence as are ordinarily possessed and exercised by the average members of the profession in good standing, in similar localities and in the same general line of practice, regard being had to the state of medical science at the time." And the burden is upon the plaintiff to establish such negligence and want of skill.

Here the plaintiff failed to establish negligence in accordance with the standard prevailing in the locality where the treatment was given or in like localities. The witnesses were Cincinnati physicians. "If these physicians," said the court, "meant the standard existing in Cincinnati, a large city, where they knew and were familiar with the practice, then such standard fixes no liability on the defendant."

The plaintiff further failed to show that under the conditions existing at the time of treatment the defendant was negligent. The Cincinnati physicians had not seen the patient until four months after the treatment by defendant. Moreover, though there may have been a mistake in diagnosis, it was not shown to have been an error of judgment inconsistent with the degree of skill which it is the duty of the physician to possess. "Where a physician exercises ordinary care and skill, keeping within the recognized and approved methods, he is not liable for the result of a mere mistake of judgment."

NOTE.

The general doctrines announced in the above are in accord with the recognized and established principles in the law governing malpractice. Some question has arisen concerning the standard of care where the diagnosis or treatment may differ according to the practice of different schools of medicine. It has been held generally that this must be measured by the principles only of that school of medicine which the

defendant sought to apply and in which he professed to be skilled. As a corollary the courts have held that practitioners of any one school of medicine are as a general rule incompetent to testify concerning the diagnosis and treatment by a member of another and distinct school. But this does not obtain where the defendant may not be a follower of what may be called a "school" of medicine, or where the diagnosis and treatment in the different schools are identical. Two recent cases in Missouri illustrate in an interesting way the application of this doctrine.

In *Longan vs. Weltmer* (1904), 180 Mo., 322, where plaintiff was greatly injured by the unskillful treatment of defendant, a magnetic healer, plaintiff was not required to show that the treatment received was not proper or usual in *magnetic healing*, but it was sufficient to show that it was not proper to be given in any case to one in plaintiff's condition at the time.

Defendant did not belong to any school of medicine. It was then held to be perfectly proper for any physician, competent from education and experience, although he did not claim or pretend to know anything about the practice of magnetic healing, to testify concerning the treatment given in that case.

Following this was the case of *Granger vs Still* (1905), 187 Mo., 197, where plaintiff charged that she was negligently, unskillfully and improperly treated for hip dislocation by an osteopath. Physicians other than osteopaths were called upon to testify as to the diagnosis and treatment by the defendant in this case. Defendant offered objection. Plaintiff offered to prove that osteopaths use the same text books as other schools of medicine and also that they have no fixed rule of practice for the treatment of hip joint diseases. In either view of the facts, the court held the physicians competent to testify. In substance the court reasoned that if osteopaths teach the same text books as other schools of medicine, then physicians of other schools are competent witnesses to express an opinion as to the correctness of the diagnosis and treatment of hip diseases by an osteopath. On the other hand, if osteopaths have no fixed rule of practice for the treatment of hip diseases which osteopaths must adhere to, then they would not constitute a school of medicine, and on the authority of *Longan vs. Weltmer*, supra, regular practitioners of medicine and surgery are competent witnesses to testify as to the correctness of a diagnosis and treatment of hip diseases by an osteopath. But accepting the fact rather that they constitute a distinct "school," they "are not competent to express an opinion as to the treatment of the plaintiff by the defendant, unless it should appear that both the schools to which the witnesses and the defendant belonged employed the same treatment."

BOOK REVIEWS.

SCHUMANN'S MEDIZINISCHE VOLKSBUECHER. Verlag von J. F. Wilhelm Schumann, Leipzig.

This is a series of small monographs on various subjects in medicine and hygiene, written for the laity. If the public must read medical books (and, apparently the public *will*), it is just as well that good ones should be provided for their edification.

In the series are various monographs on the various infectious diseases and studies in public and personal hygiene which would appear to have distinct educational value. It appears questionable, however, whether there is any occasion for offering a lay public a monograph on diseases of the liver, or one on tabes, both of which are included in the series.

The books are well gotten up, the old German script being used. The average price per volume is Mk. 50, so that the books are within reach of the people who want them, and accessible to those who need them, if such there be.

REFERENCE HANDBOOK OF THE DISEASES OF CHILDREN. For Students and Physicians. By Prof. Dr. Ferdinand Fruhwald, Chief of Clinic in the Vienna Polyclinic. Edited with additions by Thompson S. Westcott, M. D., Associate in Diseases of Children in the University of Pennsylvania. With 176 illustrations. W. B. Saunders & Co., 1906. pp. 533.

Dr. Fruhwald's well known Kompendium der Kinderkrankheiten, has enjoyed great popularity abroad, and its excellent translation will do much to win for it deserved favor here. As the author states, the book is not designed to take the place of a text book; its object is to serve as a convenient clinical guide. The alphabetical arrangement of the subjects, with the numerous cross references, make the book a very convenient one for ready reference, and the immense clinical experience of the author gives the weight of authority to his views. While the work is necessarily somewhat condensed, it is noteworthy that special attention is given to therapy, and indeed the book may fitly be said to represent the therapeutic views of the Vienna school today.

Dr. Westcott's translation is admirable, and its clearness adds greatly to the pleasure of a reading of the book.

The book work is quite up to the standard of the publishers.

MEDICINISCHE BIBLIOTHEK FUER PRAKTISCHE AERZTE. Published by C. G. Naumann in Leipzig.

This "Medical Library" consists of monographs which appear periodically. They are written by eminent specialists and mostly devoted to problems of practical importance. One hundred seventy numbers of the series have now appeared, each comprising approximately 80 pages and being sold for the very low price of 50 pfennige (about 12 cents). The two numbers before us, "First Aid in Serious Injuries," by Dr. Winkelmann, and "Vaccination and Its Technique," by Dr. Blass, Director of the Royal Vaccination Institute of Leipzig, are excellent representations of the two subjects.

A MANUAL OF MEDICAL JURISPRUDENCE, INSANITY AND TOXICOLOGY. By Henry C. Chapman. Third Edition. W. B. Saunders & Co., Philadelphia.

The main value of this book lies in its first part, that of medical jurisprudence. The author, in his concise way, presents real information and instruction, much of it on points not generally treated of, which are, nevertheless, affairs of great importance.

ON LEPROSY AND FISH-EATING. A Statement of Facts and Explanations. By Jonathan Hutchinson. W. T. Keener & Co., Chicago. Price, \$3.25.

If we want to be sincere we must admit that we know little about the origin and nature of lepra. We talk about the etiologic factor of the lepra bacillus, and its constant presence in characteristic lesions in leprosy individuals doubtless justifies this belief. If statistics on conditions that occur far apart and under most various internal and external circumstances mean much, we have a right to assume the great probability of the etiologic factor of this bacillus. Hutchinson, whose well-known ideas are presented in this book, acknowledges this, but his assumption of the entrance of the bacillus into the human organism by putrid food in the form of not well preserved fish is the point of issue. He has collected during his life, for more than 40 years devoted to this problem, an immense amount of material which is utilized by him to construct circumstantial evidence to prove the transmission of the disease through spoiled fish. We know almost fully the course of the disease, and know to a degree that it is specific and produces conditions like other bacterial and chronic infections. It seems also that its direct infectivity, or perhaps contagiousity, is also established. Certain it is, however, that in no case has a direct evidence to prove these facts been produced. The mysteries of lepra are deeper than those of other infectious diseases. Great care, therefore, must be exercised when placing a single factor in the foreground, without direct proof, that in its inner nature is so very improbable in view of the knowledge we possess of the character of other and certainly analogous conditions. Historically Hutchinson's book will live forever. It cannot be said, however, that his views will turn the investigation of the etiology of lepra in the direction which the circumstantial evidence collected by him suggests to him is the only correct way.

THIRD TREATISE ON THE EFFECTS OF BORAX AND BORACIC ACID ON THE HUMAN SYSTEM. By Dr. Oscar Liebreich. Translated from the German. P. Blakiston's Son & Co., 1012 Walnut Street, Philadelphia. 1906.

Liebreich's work is instructive evidence of the difficulties obtaining in drawing results from experiments like those made on a large scale by H. W. Wiley on the effect of boracic acid and borax on the human organism. Although Wiley himself was able, by tightening the screws on his results very closely, to suggest a small extent of deleterious action of these substances, it was so slight that the impartial reader will not be convinced that they can be made the basis of wide-reaching measures. Liebreich has convincingly shown by his critical investigation that many steps taken in Wiley's experiments are methodically objectionable, and that certain conclusions are based on false calculations. As no lasting injury to health was shown, on the contrary persons experimented upon were better after seven months than before the experiments began, we must admit that the whole affair resulted in benefit only to the news-mongers of the public press.

LECTURES ON TROPICAL DISEASES. Being the Lane Lectures for 1905. Sir Patrick Manson. Chicago: W. T. Keener & Co. 1905.

Manson's book gives an authoritative discussion of the greater number of tropical diseases, as was to be expected from a writer who has contributed so much of foundational importance to the subject. What makes the book so attractive is the form of language used making the reading exceedingly fascinating. The discussion in a number of places may appear incomplete to some, but this is due to the time at which it was written, almost one and one-half years before it appeared in print. The study of many especially infectious tropical diseases has added so much essential material to the subject during the last year that Manson's book cannot be said to be now "up-to-date," although at the time it was delivered in the form of lectures it represented almost the total of our knowledge.

ARCHIV. F. HYGIENE. Edited by f. Gorster, M. Gruber, Fr. Hofmann u. M. Rubner. Vol. 55. 1906. Muenchen and Berlin. Verlag. R. Oldenburg. Price M. 15.

A review of the contents of this volume is not possible without occupying a space exceeding the limit at our command. The Archiv has been a leading medium since its first volume and has kept up its reputation. The volume just completed widens our knowledge in the first place by Uffenheimer's paper on his studies of the permeability of the gastro-intestinal tract of new-born animals for bacteria and genuine proteids. It is the first work in this line that offers a real basis for further investigation. Among other contributions, Friedemann's paper on organic proteid and food-proteid deserves great consideration while his studies on the precipitation of proteid by other colloids may be the beginning of an elucidation of the reaction of immune bodies.

ZEITSCHRIFT FÜR BIOLOGIE. Edited by C. Voit. Vol. 47. New Series, Vol. 27. Muenchen and Berlin: R. Oldenburg. 1906. Price, 20 marks.

The object of this work has been from its beginning the publication of investigations of biologic problems in the widest sense. It has always been limited to this line of work and any comment referring to the wealth of material published and the stimuli given by it is to the initiated unnecessary. In biology we do not want theories and hypotheses, but must have the gradual succession of the establishment of facts which will finally lead to logical conclusions. This is the reason why the trend of this publication is in the line of exact although often very limited investigations that mostly attempt to trace back biologic phenomena to physical and chemical reactions. In the common conception of biologic problems this phase is only too often neglected and the Zeitschrift is one of the most important means through which to keep the trend of work in lines controllable by principles fundamental and final. The latest volume contains a great number of single contributions, but to detail them singly would be impossible for one individual. In their entirety they have greatly enlarged the compass of our understanding of biologic processes and will form the basis for wider recognition of the necessity of using exact methods in the study of biology.

NASAL SINUS SURGERY, WITH OPERATIONS ON NOSE AND THROAT. By B. Douglass, M. D. Illustrated with 67 half-tone and colored plates. Cloth. Pp. 264. Price, \$2.50, net. F. A. Davis & Co., Philadelphia. 1906.

In this little volume of 264 pages the author gives in a brief and concise form the anatomy of the nose and accessory sinuses, with special reference to the points of surgical interest. The anatomy of the sinuses and their relation to the nasal cavities, orbits and the brain are illustrated by fine photographic half-tones of anatomic preparations. A special chapter is devoted to each of the sinuses. A historical sketch with the special anatomy and the various methods of examination and diagnosis are discussed at length. Both the conservative and radical methods of treatment are given careful consideration. Most of the classical operations are described in detail.

The subsequent chapters are devoted to the operations on the nose proper. The older methods of operation on the deflected septum are discussed at length, but the modern submucous resection of the septum is dismissed in as brief a manner as possible. Why this should be we fail to see, as this operation has been received with greatest enthusiasm the world over. The external deformities of the nose are given special attention. This portion of the work deserves special mention. A special chapter is devoted to tracheotomy and laryngotomy, and is beautifully illustrated with colored plates.

This little volume is a very acceptable addition to the literature on these special subjects.

THE MEDICAL DISEASES OF INFANCY AND CHILDHOOD, WITH POINTS ON THE ANATOMY, PHYSIOLOGY AND HYGIENE PECULIAR TO THE DEVELOPING PERIOD. By Alfred

Cleveland Cotton, A. M., M. D., Professor of Pediatrics, Rush Med. Coll., Univ. of Chicago, Attending Physician for Diseases of Children, Presbyterian Hospital, Consultant to the Central Free Dispensary, etc., etc. J. P. Lippincott Co. 1906. Pp. 670. Illustrated. Price, \$3.50.

Dr. Cotton's contributions to pediatric literature have been numerous and valuable, and the appearance of his book was therefore awaited with much interest. It was to be expected that the chapters on anatomy and physiology of infancy and childhood would be especially valuable, and indeed, the first fifteen chapters of the book, dealing with these subjects, really form a most important addition to modern pediatric literature. This part of the book will be most useful, not only to the student, but also to the practitioner desiring a handy book of reference on this important branch of pediatrics. Chapter 13—on the care of the mouth and naso-pharynx, of the feet and legs, on the development of secretions, and change of diet in later infancy, and chapter 14—concerning education and the capacity for attention in children, are especially valuable. In the discussion of infant feeding, the teachings of the American school are considered at length. The author concludes that percentage feeding—"while founded upon a misconception of the identity of constituents of cow's milk and mother's milk, is still, now that these differences are better understood, by far the best method of feeding with the best of all substitutes." The various diseases of childhood are succinctly but clearly treated in part two, and the latest literature is frequently referred to.

In the appendix, sick room hygiene is considered, general rules of dietetics for children given, with recipes, and a formulary of some simple prescriptions added.

The book work is most excellent, indeed the publishers are to be highly commended for having produced such a book at the price asked. The book is sure to be widely read, and as generally appreciated.

DIE KARIKATUR UND SATIRE IN DER MEDIZIN.—Mediko-Kunsthistorische Studie von Dr. Eugen Hollaender in Berlin. Mit 10 farbigen Tafeln und 223 Abbildungen im Texte. Verlag von Ferdinand Enke. Stuttgart. 1905. Price: Mks. 24.

It is that obvious disproportion between the gigantic and ideal aim of medical science, to fight death, and its comparatively small actual achievements, which from oldest times up to the present day has rendered the physician a suitable object of ridicule to his fellow beings. Caricature and satire are today recognized as most valuable sources of information to the historian. The medical historian, however, so far has failed to make use of this interesting material. With an energy, judiciousness and diligence, which cannot be praised too highly, Hollaender has collected cartoons, poems and other art products which deride the medical man and his art. He arranged them so that they give a consecutive account of the gradual development of our science, including, of course, also the history of the many illegitimate fads and "special schools."

In reviewing another essay of the same author, his "Medicine in the Classic Paintings," we had occasion to mention his excellent style and the unsurpassed beauty of the illustrations. These two commendable features are not lacking in this new volume, and together with the wealth of information render the perusal of this book one of rare pleasure.

ATLAS UND GRUNDRISS DER GYNAEKOLOGISCHEN OPERATIONSLEHRE. Von Dr. Oskar Schaeffer in Heidelberg. Mit 42 Tafeln und 21 Textabbildungen. Muenchen, J. F. Lehmann's Verlag. 1902. Price: Mks. 12.

This is volume 28 of the famous collection of Hand Atlases, published by Lehmann in Munich, known in this country in their English translation as Saunder's Hand-Atlases. This is a volume of special excellence. The illustrations are clear and plastic, the accompanying text comprehensive. Practically all gynecologic operations of any importance, both the abdominal and vaginal methods, are ably presented.

TEXTBOOK ON THE PRACTICE OF GYNECOLOGY. For Practitioners and Students. By William Easterly Ashton, M. D., LL. D., Professor of Gynecology in the Medico-Chirurgical College, Philadelphia. With 1046 new Line Drawings by John V. Alteneder. Second Edition. Philadelphia. W. B. Saunders & Co., 1906.

That the general practitioner and especially the student has appreciated this latest work on gynecology is well proved by the fact that within six months the preparation of a second edition has become necessary. This second edition is practically a reprint of the first edition, the changes being limited to the correction of several typographical errors and the alteration of a few drawings.

A COMPEND OF OBSTETRICS. By Henry G. Landis, A. M., M. D. Revised and edited by William H. Wells, M. D., Adjunct Professor of Obstetrics and Diseases of Infancy in the Philadelphia Polyclinic. Seventh Edition. Illustrated. Philadelphia: P. Blakiston's Son & Co., 1901.

The various divisions of the subject have been rearranged and the little volume brought up to date by the introduction of the most recent teachings in the science of obstetrics. This has necessitated a slight enlargement of this excellent little compend.

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ORIGINAL ARTICLES.

PRIMARY RETROPERITONEAL SARCOMA WITH REPORT OF CASES.*

BY JOHN C. MUNRO, M. D., Boston, Mass.

Surgeon-in-Chief Carney Hospital.

The history of progress in the surgical treatment of the more common or, perhaps, I should say the more accurately recognized diseases, has been the working backward through hopeless and severe types, to the less severe, and finally to the forms which are so mild and innocent in their manifestations that until their true significance has been accurately demonstrated by surgeons, they are regarded as unimportant or without bearing on the late, death-dealing lesions. Thus the history of appendiceal surgery began with the treatment of the abscess in the diffuse-infection type. Advance was then made by attacking the acute infection before it had jumped the bounds of the appendix, until now thousands of lives and infinite suffering are saved by removal of the organ where the lesion is so insignificant that it would be overlooked, had we not learned by bitter experience that these very insignificant lesions are but the precursors of the grave and fatal lesions for which alone surgery was sought a few years ago. So it is with diseases of the biliary passages, of the stomach, prostate, etc.

May not the same criticism, though to a less extent, apply to retroperitoneal lesions? To a less extent, a priori, in dealing with retroperitoneal sarcoma because it is a malignant disease of the worst type. But these tumors are localized early in their course; some of them can be extirpated radically and though permanent cure may be doubtful, there is no question as to the prolongation of life and the alleviation of suffering. Rarely do these cases come early to the surgeon. He sees them when they are well advanced, after the patient himself has observed his own tumor and hence months after it should have been detected by the watchful practitioner. His digestion or other abdominal symptoms have been allowed to persist for months and have been treated in a haphazard way by the internist long after the time when an exploration would have cleared up

*Read by invitation before the St. Louis Surgical Society, April, 1906.

an obscure diagnosis and given the patient his only chance for permanent or temporary relief.

As we have worked backward, so to speak, in the battle with the curable abdominal diseases, so must we work backward in the course of time with this less hopeful disease which is still obscure in its early, and on that account, its most important symptoms. No one surgeon has had enough experience with retroperitoneal sarcoma to obtain the broad perspective that he holds in such diseases as those mentioned above, but by the slow accumulation of data from many men we may sooner or later discover the combination that will help to solve the early diagnosis of this obscure disease.

Retroperitoneal sarcoma, when secondary to a focus in one of the external organs is, as a rule, diagnosticated without difficulty. But when it comes primarily from the retroperitoneal tissues it is so apt to simulate other and more common diseases that it is overlooked until beyond surgical relief. By careful study of the symptoms in secondary sarcoma we may be able to obtain light that will aid us in detecting primary growths early in their appearance. Recent articles on this subject, like those of Steele and others, collect a comparatively small number of cases from which to draw conclusions. The writer would add a few cases in the hope that a brief study of them and of those reported within the last decade may make it possible to draw some conclusion that will aid us in our diagnosis and treatment.

Retroperitoneal sarcoma may come at any period of life from infancy to old age; all types are represented and, as in a case reported by Gobell, there may be a combination of sarcoma and carcinoma. According to Steele the growths tend to soften through hemorrhagic degeneration. Metastases may be found, usually in the neighboring organs (liver, spleen, etc.). The adjoining viscera may become involved by direct invasion as is evident in some of our cases. As in sarcoma elsewhere the prognosis is bad. Cases that are suspected or recognized early may allow of complete extirpation with freedom from recurrence for a longer or shorter time, as in Mairinger's patient, where a fibro sarcoma was easily removed because of its narrow base.

As a rule, however, the growths are so extensive or are seen so late in their history, that operation is of no avail. Coley has reported some success with the prodigious toxin and probably the X-ray may be of occasional benefit, but as a rule the outcome is fatal. Death comes from interference, through pressure, with the function of the abdominal organs; from rupture into the abdominal cavity of a degenerated growth as reported by Steele in 3 cases; following hemorrhage from a ruptured vessel in the capsule as reported by Williams; or from general cachexia.

According to Steele the tumors are more liable to be found in the lumbar region and on the right side, but the aggregate numbers are too small

yet to definitely settle the latter point. Tumor growths are more rarely seen high up and low down in the prevertebral cellular space. The tumor is usually localized, especially in the early stages, though not necessarily so, as we occasionally find the same infection diffusely incorporated in the retroperitoneal nodes at a comparatively early period. Steele finds that these tumors degenerate early and he advances their change in consistency from a hard to a fluctuating tumor as an important diagnostic sign.

Occasionally there is found more or less evening rise of temperature and it is doubtful if this is always due to septic degeneration of the growth. The presence of moderate fever should not rule out the possibility of a malignant retroperitoneal tumor. The symptoms so far as one can judge by analyzing the published cases are not always characteristic nor even consistent. Lockwood found in two patients with enormous growths only dyspnea and a feeling of weight in the hypogastrium to guide him. Rogowski and others have found œdema of the lower extremity as the dominating symptom, but as a rule in the lumbar types, one may look for disturbance in the function of the gastro-intestinal tract, such as distress after eating, possibly with occasional vomiting, gastric pain, constipation, persistent distress from gas, etc. Steele includes diarrhea among the likely symptoms.

Steady loss of weight and strength, out of proportion to the digestive disturbance, anorexia followed by neuralgic pains and œdema of the lower extremities are symptoms that should awaken suspicions of some intra-abdominal lesion, more serious than the so-called medical types of dyspepsia.

In most patients the tumors can be felt more or less distinctly at a fairly early stage if sufficient care is taken in examination. When felt or suspected, the earlier an exploration is made the better. After the tumor is visible or easily palpable the time for radical interference is past.

The relation of colonic tympany to local dullness, etc., holds good just as it does in any retroperitoneal tumor, but by the time this sign can be demonstrated as characteristic, the growth has passed far beyond surgical relief. In the early stages, an obscure deep fullness, especially in the lumbar region, whether on the side or over the spine, a slight tenderness of this fullness associated with emaciation, digestive disturbance not consequent upon discoverable lesion of the stomach, together with abdominal pain not dispersed by the ordinary treatment for functional indigestion should arouse sufficient suspicion of the presence of retroperitoneal growth—whether sarcoma or not is immaterial—to warrant exploration.

To illustrate some of the points that I would emphasize I will briefly report the histories of my cases with reference to the clinical picture and the conditions found at operation. My earliest case was a man of 50 who was sent to the Boston City Hospital with a diagnosis of stricture of the rectum. He had had symptoms of intestinal obstruction with

severe pain in the back for 8 months. That there was some deep obstruction to the circulation was shown by the dilatation of the epigastric veins. Exploration revealed an inoperable retro-peritoneal tumor pushing the pancreas, vena cava and portal vessels forward. At autopsy a large sarcoma was found surrounding the aorta and extending from the arch to the bifurcation, and spreading laterally to both kidneys, burying but not involving them.

Not long after this a man 27 years old was sent to me at the Boston City Hospital and though I have previously believed and reported this case as one of sarcoma of the stomach I think now that it was primarily a retroperitoneal sarcoma. About six months before I saw him he began to have diffuse epigastric pain most marked after meals. For awhile there was marked flatulence also. He had vomited a little blood once, but otherwise he had rarely vomited at all. He had become markedly constipated and had lost weight and strength. He himself had observed a tumor in the epigastrium for several weeks. A month before entrance he had had an attack of very severe abdominal pain, but without any concomitant signs or symptoms. Examination of his blood showed 30 per cent hemaglobin and $1\frac{1}{2}$ millions red globules. He exhibited an epigastric tumor, slightly movable from side to side, but not descending with respiration. He was too ill for operation and was put upon forced feeding by mouth and rectum. In a month he had improved enough to warrant exploration. Most of the time there had been more or less irregular temperature, although there was no leucocytosis. Exploration showed a large nodular tumor extending from the spine to the anterior wall, to which it was adherent. In the left flank, near the kidney, was a second smaller retroperitoneal nodule. A fragment was removed for diagnosis and the abdomen closed. The patient was able to return to Philadelphia shortly afterwards, where he died in the course of some weeks.

My third case may be included here, though it originated in the perirectal connective tissue, involving the abdominal lymphatics later. The patient, a Jew, 57 years old, was first seen by me at the Boston City Hospital, in 1902, when I removed by combined abdominal and perineal route the lower portion of the rectum, together with the sarcomatous growth that had invaded it from the perirectal space. Following this for $2\frac{1}{2}$ years the patient returned every few months with recurrence, finally requiring a colostomy, the invasion having progressed upwards into the abdomen.

The fourth case is that of a young man who $3\frac{1}{2}$ weeks before his entrance to the Carney Hospital had complained of pain in the lumbar region, especially when lying down. For two months he had noticed an abdominal tumor. He had lost weight, strength and appetite. Exploration revealed a solid retroperineal tumor extending from the left nearly to the right kidney. It was movable vertically and apparently

started from a pedicle at the lower edge of the pancreas. The abdomen was closed as consent had not been obtained for radical operation. He returned to the hospital, however, begging for relief from the intolerable pain in his back and one month after the first operation the abdomen was reopened and the growth was found considerably increased in size and adherent to the anterior wall and to the transverse colon. The growth was then freed from the pancreas, of which it was independent pathologically, and resected together with all the small intestine except 4 inches of the jejunum and the lower 12 inches of the ileum. Anastomosis was made with a Murphy button and the wound closed with drainage. Five days later the patient died and partial autopsy showed that the gut had sloughed at the joint from interference with the blood supply.

The fifth case is that of a woman of 54, who, six months before entrance to the Carney Hospital, was taken suddenly ill with sharp epigastric pain, extending into the left side, followed in a few weeks by so-called rheumatism of the lower extremities. Two months before entrance she had indigestion with considerable vomiting coming on after meals. She complained mostly of distress from solid food. There had been no hematemesis nor jaundice. She had lost much weight and strength. Deep in the epigastrium a small movable tumor could be felt. At operation the pancreas felt hard, spread out, bulging forward and pushing upwards towards the diaphragm. As there were stones in the gall-bladder we made the diagnosis of chronic pancreatitis, and drained the gall-bladder. After the drain came out and the gall-bladder closed there was return of severe colic and slowly rising temperature and pulse, with marked tenderness in the tumor. Therefore the gall bladder was reopened for permanent drainage. In spite of the continuous flow of bile, however, the patient was not comfortable. She could not retain her food, she had distress whenever she attempted to eat and was slowly starving.

A third operation, six weeks after the first one, was done and the growth, plainly a retroperitoneal sarcoma, had increased very rapidly, extending to the diaphragm, into the left renal region and pushing forwards to become adherent to the lesser omentum. A gastroenterostomy was done for palliation and a fragment removed for examination. The vomiting ceased and the patient was able to take food, but she steadily failed and died two weeks later.

The sixth case is that of a man 26 years old, who, about six weeks before entrance to the Carney Hospital, began to have intestinal indigestion and constipation. Six months before entrance he himself had observed a tumor below the umbilicus. There had been no vomiting, but he had steadily lost flesh and strength. He also complained of pain in the penis at micturition. An irregular solid tumor was easily felt in the hypogastrium. Under ether a solid, pear-shaped tumor was found

firmly wedged in the pelvis. On being delivered from its lodgment it was found to take origin in the intramesenteric layers of the small intestine occupying probably the middle half of the gut length, the gut itself apparently being involved secondarily. The patient was too ill to warrant radical operation and died a few weeks later at his home.

The seventh case, a man about 40 years old, was sent to us at the Carney Hospital as a case of ulcer of the stomach. He had had dyspepsia for twelve years, but nine months before entrance he began to belch gas which was very marked and annoying for two months and then ceased. He had had distress in the left epigastric region, but at no time had there been vomiting. He had lost 45 pounds and was told by a stomach specialist that he had indigestion possibly from cancer of the stomach. At entrance he was very constipated and complained mainly of distress coming with the ingestion of food. Operation by Dr. Bottomley showed a localized retroperitoneal sarcomatous gland adherent to the spleen, which was infected secondarily. Both were removed and the patient was discharged in good condition. At present, six months later, there is no sign of recurrence.

The eighth case is that of a man of 65 who was referred to us as a case of hypertrophy of the prostate. For six years he had had frequent micturition by day and at least twice at night. A week before I saw him there had developed œdema of the scrotum and right lower extremity. Examination showed a hard mass in the right pelvis. Exploration showed a hard, nodular, immovable tumor behind the peritoneum in the iliac fossa, filling a third of the right half of the pelvis, extending posteriorly to the median line and forcing the rectum forward, while anteriorly it had infiltrated in front of the bladder, pushing the latter upwards and to the left. At the end of two weeks the left thigh became oedematous and the patient was sent home to die.

The ninth and last case is that of a man 38 years old who, one year before entrance to the Carney Hospital, began to have aching epigastric pain of short duration after supper. Later the pain became more constant, extending into the lower abdomen and back. Rarely was there vomiting. He had had no hematemesis nor jaundice, but he had lost much weight and strength and had not worked for six months. Solid food caused pain, but he could take liquids. Examination of the stomach contents was negative. A hard nodular mass could be felt in the epigastrium, moving with respiration. A diagnosis of cancer of the stomach was made.

At operation a large irregular retroperitoneal sarcoma more to the left than to the right of the median line was found pushing below to the pelvis, though its pedicle or base did not extend to the level of the umbilicus. Above, it pushed upwards nearly to the diaphragm and bulged forward to meet the abdominal wall. The upper portion was fixed, the

lower was movable. A fragment was removed for examination. The wound was closed and the patient sent home to die.

In conclusion, a consideration of all the published cases, together with our own, would suggest that the association of rapid loss of strength and weight, dyspeptic symptoms without the accompanying characteristic signs of definite stomach lesions, sudden constipation or, according to Steele, diarrhea, irregular temperature, abdominal pain with indefinite fullness and slight tenderness in these deep abdominal regions, should cause us to suspect beginning malignant retroperitoneal growth in the lumbar region. Where the growth is pelvic or iliac in origin we should expect to find early œdema and neuralgia of a lower extremity, rectal or bladder symptoms, and a mass easily discerned on pelvic examination. In the growths originating high up there is little that is characteristic beyond persistent pain or backache, anomalous dyspepsia and the accompanying asthenia.

INJURIES TO THE DIAPHRAGM.*

BY WALTER C. G. KIRCHNER, A. B., M. D., of St. Louis, Mo.

Injuries to the diaphragm, when considered in connection with injuries to other parts of the body, are comparatively rare. This may not seem strange, when we remember how well the diaphragm is protected by the adjacent organs, the liver, the lungs, the spleen, and by the chest wall. Owing perhaps to the rarity of such injuries, the subject has not generally received the proper attention, and often injuries to the diaphragm are overlooked because certain wounds in the chest or abdomen are considered trivial in character.

Injuries to the diaphragm would be more readily recognized if there were a better practical knowledge of the anatomy of the diaphragm, if the seriousness of such injuries, which may lead to immediate or remote dangers, were better appreciated, and if the diagnosis were not often so difficult. I have seen cases in which there was perforation of the diaphragm due to extension of appendicular abscesses, to liver abscesses, to aneurism, and to other causes, but I wish to confine this paper to diaphragmatic injuries primarily or secondarily the result of trauma. In order to bring out certain points in diagnosis and treatment, I shall give brief reports of four cases on which I had occasion to operate, and in which there was injury to the diaphragm.

Case 1. Stab wound of the chest, penetration of the diaphragm and injury to left kidney; thoractomy, suture of kidney and diaphragm; recovery.

History—The patient, a colored female, 25 years of age, entered the hospital with a diagnosis of stab wound of the chest. She was of a de-

*Read before the St. Louis Surgical Club, May, 1906.

generate type and was irregular in her habits of life. There was nothing of special interest in her family or personal history, except that she had suffered with an attack of typhoid fever.

When she was placed on the examining table, a hurried examination was made. She was well nourished and the muscles were well developed. The heart and lungs seemed normal. At the lower and posterior portion of the left side of the chest there was pain and dullness on percussion. Upon catheterization almost pure blood was obtained. Just external to the anterior axillary line, between the eighth and ninth ribs there was a stab wound about an inch in length. The patient was quickly prepared for thoracotomy and for laparotomy, and with the sterilized finger the wound was explored. The pleural cavity had been entered and a wound in the diaphragm and kidney was easily felt. Fearing a fatal hæmorrhage an operation was advised.

Operation—Under general chloroform anæsthesia, the patient lying on her right side, over a pad, so that the left kidney was well elevated, the stab wound was enlarged and portions of the eighth and ninth ribs resected, as is usually done in thoracotomy. A good view of the upper surface of the diaphragm and of the wound in this muscle was thus obtained. Through the wound in the diaphragm the kidney could be felt. This wound was enlarged, the peri-renal fat was loosened, and by pressure from below, and with the use of deep retractors, the kidney was pushed into the field of operation, and the wound in the kidney exposed. The wound was large enough to admit the end of the little finger and extended well into the kidney substance.

The wound in the kidney was closed with two silk sutures, the stitches being rather deep and far enough from the margin to prevent tearing of kidney substance. The margins were well apposed and the bleeding had stopped.

The wound in the diaphragm was closed with catgut without drainage of the kidney area. The pleural cavity contained a considerable quantity of clotted blood which was removed by sponging. The lung had retracted and injury to this organ could not well be made out. As well as was possible the wound of the pleural surface was closed with catgut suture. For the muscles and skin silkworm-gut sutures were used, and the wound was closed without drainage.

Subsequent History—The patient recovered well from the shock of the operation. She later coughed up bloody mucus, and on the fourth day there was some elevation of temperature. There was pain in the left side, and emphysema in the tissues about the wound. It was necessary to open the wound, and the discharge which at first was serous, became purulent in character, and the patient was then treated as for empyema. In due time the wound healed, and she was feeling well when

she left the hospital. I heard from the case a year later, and she was in good health.

For the hæmorrhage and shock, she was given hypodermoclysis of saline solution. She also received urinary antiseptic medication and bladder irrigations. A solution of potassium permanganate was used in irrigating the pleural cavity.

Case 2. Gunshot wound of chest; perforation of diaphragm; and prolapse of omentum into pleural cavity; thoracotomy; laparotomy; suture of diaphragm; recovery.

The patient, a colored youth of medium stature and moderately well developed, entered the City Hospital with a history of gunshot wounds of the left side of the chest. His pulse was weak and he was somewhat in shock. He had not vomited, his expectoration was not bloody, and he did not complain much of pain. He gave a history of chronic constipation, and his bowels had not moved for five days. He was very weak, having recovered but a short time ago from typhoid fever.

Upon examination two bullet wounds were found, both over the ninth rib. Not far removed from one of the wounds a bullet, which was felt subcutaneously, was easily and promptly removed. The second wound, which was in the mid-axillary line, was enlarged, and on exploring with the sterilized finger, it was found that the bullet having penetrated the upper portion of the rib, had entered the chest cavity. Percussion of the chest did not give dullness and there was no evidence of active hæmorrhage in the pleural cavity. The heart sounds were weak and a well marked mitral murmur was present. Examination of the abdomen did not reveal anything abnormal.

While it was evident that the pleural cavity had been entered, a definite diagnosis of penetration of the abdomen and injury to viscera could not be made. From the location of the wound and from the apparent direction of the bullet, it seemed probable, however, that the abdominal cavity had been entered, and it was evident that a definite diagnosis could only be made by exploratory operation. Preparations were accordingly made for thoracotomy and for laparotomy.

Owing to the patient's weakened condition and to the existence of the heart lesion, thoracotomy was performed under local anæsthesia, 0.1 per cent. cocaine solution being used for the purpose. At the site of the injury the muscles overlapped and crossed, but by muscle-splitting incisions, the injury to the bone was exposed with but little damage to the structures, and, in the usual manner, about an inch of the ninth rib was resected. The external surface of the resected portion presented a circular opening made by the bullet, while the internal surface of the bone was badly shattered and splintered. The opening in the pleural cavity was enlarged to admit the finger, and, on exploration, a portion of the omentum which had ascended through an opening in the diaphragm

was encountered in the pleural cavity. The patient was apprised of his condition and laparotomy was performed under general anæsthesia, the incision being made through the left rectus muscle and extending downward from the margin of the ribs. There was no intra-abdominal hæmorrhage and the stomach and intestines were found intact. The omentum was withdrawn from the pleural cavity and the injury in the diaphragm located. By means of volcella and forcible traction the wound in the diaphragm was brought into view. The cut surfaces of the wound were approximated with interrupted through-and-through silk sutures, and these were covered over with peritoneum by means of Lembert stitches. The high position of the injury and the movements of respiration render the operation somewhat difficult, but with sufficient traction the wound can be brought into view and the diaphragm steadied. When the diaphragm was permitted to retract to its normal position it was found that the opening had been perfectly closed. No other injury having been found, the abdominal cavity was copiously flushed with physiological saline solution and the wound completely closed with through-and-through silkworm-gut sutures. A gauze drain was placed into the pleural cavity through the wound in the chest.

The patient soon recovered from the effects of the operation. His convalescence was uneventful except that in the beginning, owing to the condition^{*} of obstinate constipation, the abdomen became considerably distended and great tension was thereby produced on the sutures. The wounds in the chest and in the abdomen healed promptly and without complication.

I saw the patient about eight months after he left the hospital. He was working at his usual occupation, and he stated that he had experienced no inconvenience as a result of the operation. He had, however, evidence of incipient phthisis and this condition prevented the immediate repair of a small post-operative hernia.

Case 3. Stab wound of the chest, perforation of the diaphragm, and penetration of stomach; laparotomy; death from shock.

The patient, a shoemaker by occupation, was a strong and well developed white male, 22 years of age. While in a quarrel, he received a stab wound in the left side of the chest.

When he was received at the hospital he was at once prepared for operation. The knife had entered the chest just below the fifth rib on the left side in the anterior axillary line. The wound was probed with the sterile finger, and it was found to take a direction inward and downward between the ribs, and to penetrate the diaphragm. With the finger in the opening in the chest, the wall of the stomach and the free margin of the liver could be felt.

Operation—Under chloroform anæsthesia, median section was made below the ensiform, and the stomach was found to be greatly dilated, and

contained a considerable quantity of fluid and undigested food, which exuded from a wound on the greater curvature near the cardiac end. A considerable quantity of stomach contents had entered the free peritoneal cavity. The intestines were walled off, the stomach delivered through the abdominal wound and pulled so as to expose the wound, which was closed with the Czerny-Lembert suture, reinforced by a second row of Lembert sutures. There was considerable straining during this procedure, but the opening was effectually closed. The neighboring organs, liver, transverse colon, and intestines were examined and no further visceral injury was found.

The wound in the diaphragm was one and one-half inches in length. With the finger in the opening, the diaphragm was pulled forward into view and was then grasped with forceps, so that the wound could be sutured. Six sutures were required to close the opening. The abdominal cavity was then copiously flushed with saline solution and two gauze drains inserted, one leading to the wound in the stomach, the other was placed under the liver. The abdominal wound was closed with through-and-through silkworm-gut sutures. The pleural cavity contained clots of blood, and when these were removed, a gauze drain was placed through the wound in the chest. At the close of the operation the stomach tube was used and a considerable quantity of stale beer and undigested food removed.

The patient was very restless after the operation, and he soon became delirious. His respirations became very rapid and his temperature and pulse rate also steadily increased. Shortly before death, which occurred on the second day, his temperature rose to 107.4 degrees.

Autopsy—The wound in the stomach was completely sealed over with exudate and the sutures were found intact. The wound in the diaphragm was also completely closed. The peritoneal cavity and its contents were free from inflammation, but there were considerable inflammatory changes in the pleural cavity. The spleen was enlarged and soft in consistency. The heart, lungs and kidneys were practically normal. The chief cause of death was attributed to shock.

Case 4. Penetrating stab wound of the thorax and abdomen; laparotomy, in which a true diaphragmatic hernia was encountered; death from hæmorrhage and shock.

The patient, a white male, 35 years of age, of medium stature, had received a stab wound at the lower border of the chest in the mammary line. When he was received at the hospital there was no radial pulse, both pupils were dilated, the breathing was sterterous, and he was anæmic, cold and in shock. Pressure over the abdomen was painful, and there was evidence of severe intra-abdominal hæmorrhage.

After the usual preparation, under a general anæsthetic, the incision was enlarged downward and it was found that the penetrating instrument

had severed three ribs in the mammary line, cutting through the costal margin. The abdominal cavity was filled with blood. The spleen was slightly injured but did not bleed much. The gastro-colic ligament was severed and there was active hæmorrhage from two vessels. These vessels were ligated. The omentum was not in its normal position, but instead was adherent to the diaphragm. On further examination, an opening through which the finger could be inserted, was found in the diaphragm. An incision was made in the mid-axillary line, through the chest wall, and by exploring by the pleural and abdominal routes, a mass about the size of a pear could be felt in the pleural cavity. The omentum

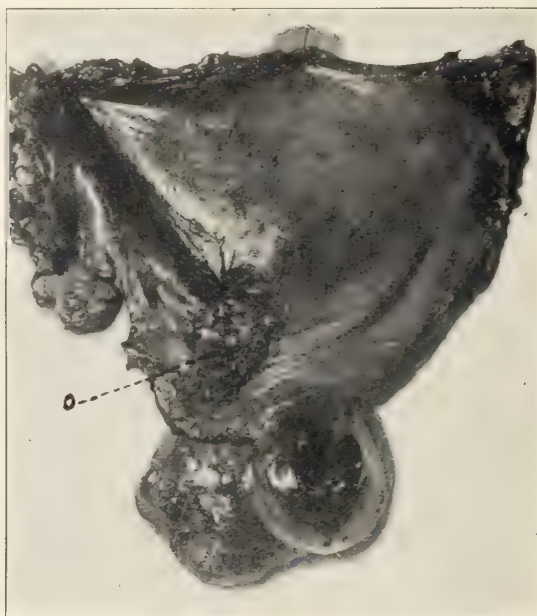


FIG. 1.—Specimen of Diaphragmatic Hernia.—View from peritoneal surface showing omentum, O, passing through hernial opening in diaphragm into sac. (Case IV.)

had ascended through an opening in the diaphragm into the pleural cavity, where it was confined in a sac. A rubber drain was placed into the pleural cavity and a glass tube was placed into the pelvis through a suprapubic incision. A small drain was placed at the upper angle of the laparotomy wound which was closed with silkworm gut sutures. The patient rallied somewhat after the operation and regained consciousness sufficiently to state that he had, on a previous occasion, been stabbed in the chest. The patient had received hypodermoclysis of saline solution, morphine, whiskey and aromatic spirits of ammonia, but these gave only temporary relief and he died a few hours later from symptoms of hæmorrhage and shock.

At the autopsy the specimen of diaphragmatic hernia was obtained (Figs. 1, 2). The hernial sac was 8x5 cm. and contained a great portion of the omentum which has become adherent to the neck of the sac. The ring would easily admit the finger. It is probable that the diaphragm was only partly cut through at the time of injury, and that this so weakened the structure that a hernia resulted, in which the sac was formed by the peritoneal layer.

In order that a diagnosis of injury of the diaphragm may be made, it is important to have a knowledge of the relations of the diaphragm, and to bear in mind certain anatomical landmarks. We can consider the



FIG. 2.—Specimen of Diaphragmatic Hernia.—View from pleural surface showing true sac containing omentum. (Case IV.)

extent of the surface exposed to injury as the *diaphragmatic area* and for practical purposes this may be represented as a projection of the limits of the diaphragm on the external surface.

The diaphragm is not a horizontal partition, as is often supposed, but has rather the shape of a child's hood, opening toward the front, where it is limited by the free border of the costal cartilages. The upper or horizontal portion is convex and conforms in the main to the curvature of the liver. The lower portions lie more or less closely to the ribs, and therefore assume a more vertical position.

Observations upon cadavers have demonstrated that the height of the diaphragm and the relations to the adjacent organs vary greatly in differ-

ent subjects, so that in penetrating wounds of the chest or abdomen with injury to diaphragm, it may be difficult to judge of the seriousness of the injury. The liver, stomach, spleen, or kidney may easily be injured by penetration through the chest-wall within the diaphragmatic area.

The symptoms of injury are often obscure and in many cases they are entirely wanting. Since most of the injuries are on the left side, the left side of the chest, the epigastric and left hypochondriac regions should be carefully examined. There is usually but little pain unless there is prolapse of omentum, or of abdominal viscera. There may then be difficulty of respiration, a sense of fullness in the chest, pain in the epigastrium or the various symptoms of strangulation of bowel may supervene. We should consider penetration of the diaphragm just as we consider penetration of the abdominal wall, and the train of symptoms which may occur in the one case, may also be found in the other. When great crushing violence has taken place, injury to the diaphragm will, in most cases, be obscured by severe injury to other organs.

The diagnosis may be difficult or easy, depending upon the manner in which the wound was received. It is always important to get a history of the case as it pertains to the injury. The position of the body at the time of injury, the direction of the bullet, or instrument causing injury, the length of the cutting or stabbing instrument, the nature of the superficial wound (incised or stab), and in gunshot wounds a study of the margins of the wound,—a study of these minor points, which are only too often overlooked, is of great value as an aid in diagnosis. It should be remembered in stab wounds, that the size of the superficial wound is no index to the damage that has been done. In contusion and rupture of the diaphragm great violence is necessary, and there is great shock or injury to internal organs. In penetrating wounds of the diaphragm, the wound is usually compounded, and two large cavities, the abdominal and the pleural cavity are exposed to infection and to injury of their contents. It is therefore of the greatest importance that a positive diagnosis be made, and this is best done by tactile or ocular demonstration. Sometimes there is prolapse of omentum, through the wound in the chest, or the omentum or injury to the diaphragm may be felt through the pleural cavity.

A very frequent mistake, however, is that the examining finger is passed through the chest wall and opening in the diaphragm, and that the abdominal cavity is mistaken for the pleural cavity. When the external wound is on the border line, the entrance of air into the pleural cavity may decide whether or not the diaphragm has been injured. In laparotomies this air test will also be found of value in detecting perforations. When hernias are suspected the X-ray may be of value in addition to the other physical signs.

The chief danger resulting from injuries of the diaphragm are (1),

penetration of the abdominal cavity, in which case there may be injury to viscera, and laparotomy is then indicated, and (2) hernia or prolapse of abdominal viscera into the pleural cavity. Where the diaphragm has been injured, death may be due to shock, to infection of pleural or abdominal cavity, strangulated diaphragmatic hernia, or to hæmorrhage.

In most cases injury to the diaphragm should be repaired, and treatment is indicated here as strongly as when there is injury to other parts of the body. Simple, small and uncomplicated injuries to the diaphragm, if protected by the liver or spleen, will heal of themselves, and if kept clean need little attention. But injuries to the free portion of the diaphragm should not be overlooked, and should be repaired to prevent the danger of hernia.

These injuries may be treated by the abdominal or thoracic route. Where complications are suspected the abdominal route is to be preferred. Simple injuries to the diaphragm can easily be repaired through the thoracic route. I have found that by simply cutting across two ribs, and by extending the incision laterally or anteriorly, so as to form a U-shaped flap, there is ample room for placing the sutures if perforations exist. If the abdominal route is chosen, the finger, or *volsella*, should be hooked through the opening and by forward traction the wound in the diaphragm can usually be brought into the field of operation. The diaphragm can then be grasped with forceps and retained in place while the wound is being repaired. Strong catgut is the best material to use for this purpose, although silk does very well. If either cavity has been infected, drainage should be used.

In concluding, I wish to emphasize the importance of making a careful examination of all penetrating wounds of the chest or abdomen to learn if injury has been done to the diaphragm, and to urge that diaphragmatic injuries be repaired so that hernia and secondary complications may be avoided.

HISTORICAL.

A BRIEF SKETCH OF THE LIFE AND WRITINGS OF FABRICIUS OF AQUAPENDENTE.

BY JOSEPH GRINDON, PH.B., M. D., St. Louis.

Nestling among the Appenines, within the territory formerly ruled by the Venetian Republic, lies the little town of Aquapendente. There, in the year 1537, was born the great anatomist and surgeon, Hieronymus Fabricius. His parents, though poor, must have possessed unusual character and intelligence, for they determined to make the sacrifices necessary to provide their son with an education. He was accordingly sent to the University of Padua, where after studying Latin and Greek, and having completed the course in philosophy, he took up the study of medicine, in which art he was to rise to pre-eminent rank.

Without wishing to lessen in any degree the glory attaching to the excellent capacities and virtues which were the inward springs of Fabricius's greatness, we may point out that he lived at a time of great mental activity, when a brilliant mind could not but be about some work, when the very air bore a contagion of investigation, of inquiry into the validity of old accepted doctrines, and of seeking after new truths.

The generation of Fabricius, and that which immediately preceded it, witnessed great movements in religious, political and scientific thought, as well as in the domains of literature and of art, of which our twentieth century civilization still bears the stamp.

Erasmus had died the year preceding Fabricius' birth, Copernicus following Erasmus seven years later. Fabricius was eight when the Council of Trent began its epoch-making labors, which were to continue with interruptions for a period of eighteen years. The same year there appeared two books of interest to physicians. The first was epochal, "The Manner of Treating Wounds Made by Arquebuses and Other Firearms and Those Made by Arrows, Darts and the Like, and Also by Burns Made Especially by Gunpowder; Composed by Ambroise Paré, Master Barber Surgeon in Paris." The other, of historic interest, was a history of the West Indies by Ovieda, in which the statement was made, for the first time, that syphilis originated in America.* The year following was marked by Luther's death. Our hero was sixteen when Calvin burned another great anatomist, Servetus, at the stake. The Society of Jesus, still under the generalship of Ignatius Loyola, was operating within the church a wonderful revival in learning, zeal and virtue. During the latter

*The *Fabrica* of Vesalius had been published at Basel two years before.



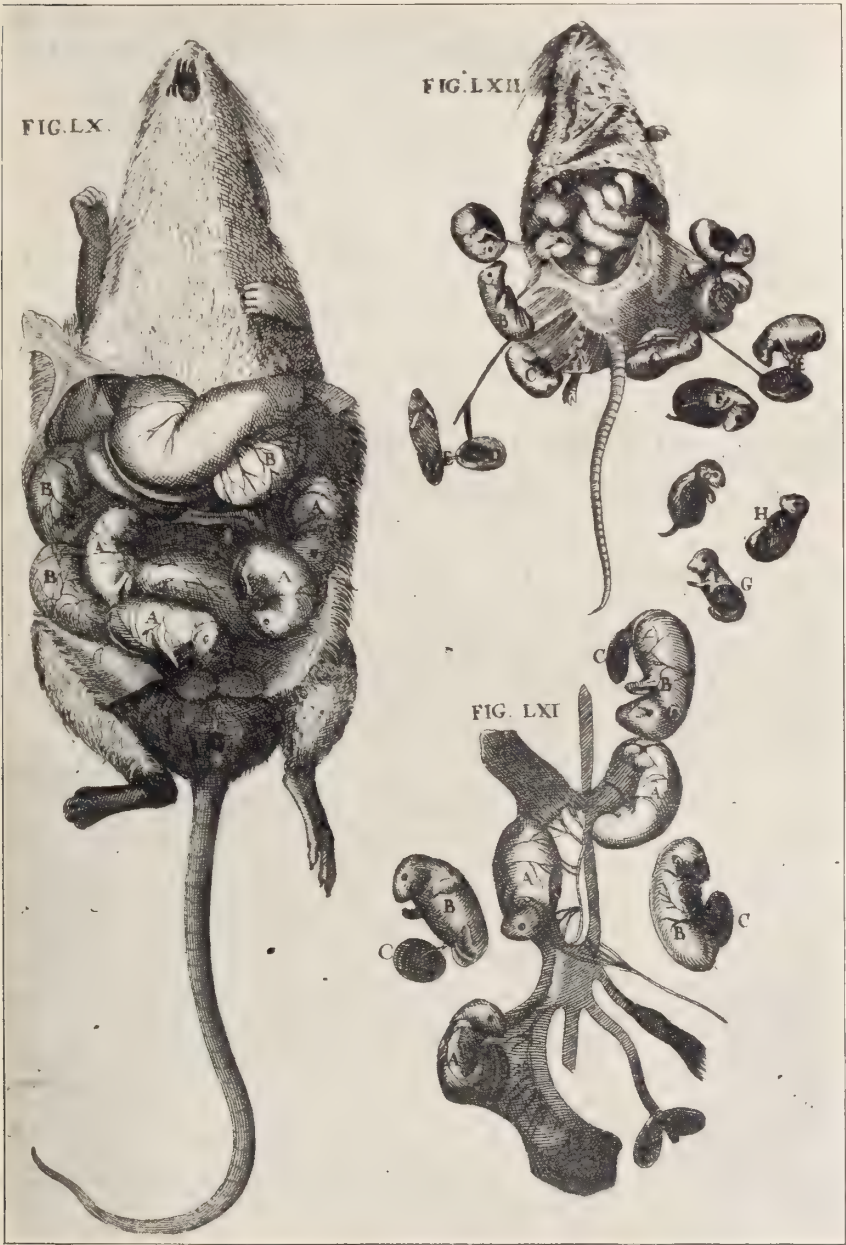
part of his life England enjoyed that wonderful outburst of literary genius which gave us Spencer, Kit Marlowe and Shakespeare. Bacon and Burton were in the midst of their literary labors, although the "*Novum Organum*" did not appear until the year following Fabricius's death, and the "*Anatomy of Melancholy*" the year following that. At the same time the literature of Spain and of the world was being enriched by Lope de Vega and Miguel de Cervantes. The deaths of Cervantes and of Shakespeare, occurring on the same day, preceded that of Fabricius by three years.

While Fabricius was studying anatomy at Padua, Tasso was writing the *Gerusalemme Liberata* at the Court of Ferrara. Michael Angelo was planning the dome of St. Peter's, Benvenuto Cellini was dividing his time between sculpture, metal-work and his masterly if vitriolic autobiography, while as chapel-master at the church of St. John Lateran, Palestrina was laying the foundations of modern music.

Raphael and Leonardo had passed away less than a score of years before his birth, and the powerful influence of their work was yet fresh in men's minds.

And if the time were propitious to mental growth, the place where the young anatomist pursued his studies was no less so. What memories clustered about every stone of the grand old city! Padua, founded soon after the destruction of Troy, the birthplace of Livy, sacked by Alaric, then by Atilla, and restored by Charlemagne. With its lofty walls flanked with bastions and pierced by seven gates, with its wide piazzas planted with trees and surrounded by running streams, with its fine town-house, then nearly four centuries old and still standing to-day, with its magnificent cathedral, then just completed and containing among other treasures a library founded by Petrarch. And the University, where Dante had studied more than 300 years before, with its long list of celebrated professors, among whom we count Vesalius and Realdus Columbus, then and long regarded as the chief seat of law and medicine. We may be sure that the ardent young student was not insensible to these surroundings and memories. Padua, like Bologna, of which it was an offshoot, was a "university of students" in contradistinction to the magistral universities such as Oxford, Cambridge and the university of Paris. The former were governed by the student body itself who even elected the professors, while the latter were controlled by the masters of arts. There were at Padua at that time two separate corporations, the *Universitas Juristarum* and the *Universitas Artistarum*. The latter included the faculties of divinity, philosophy and medicine.

"The medical session began on the Feast of St. Luke with an oration in praise of medicine, followed by High Mass and the Litany of the Holy Ghost. The session lasted until the Feast of the Assumption, August 15th, and in this time the whole human body was twice dissected in public by the professors of anatomy. The greater part of the work



Illustrating comparative anatomy of gestation. (From *De formato foetu*)

in the University was done between six and eight o'clock in the morning, and some of the lectures were given at daybreak, although Fabricius when he became a professor lectured at the more reasonable hour of nine." (D'Arcy Power.)*

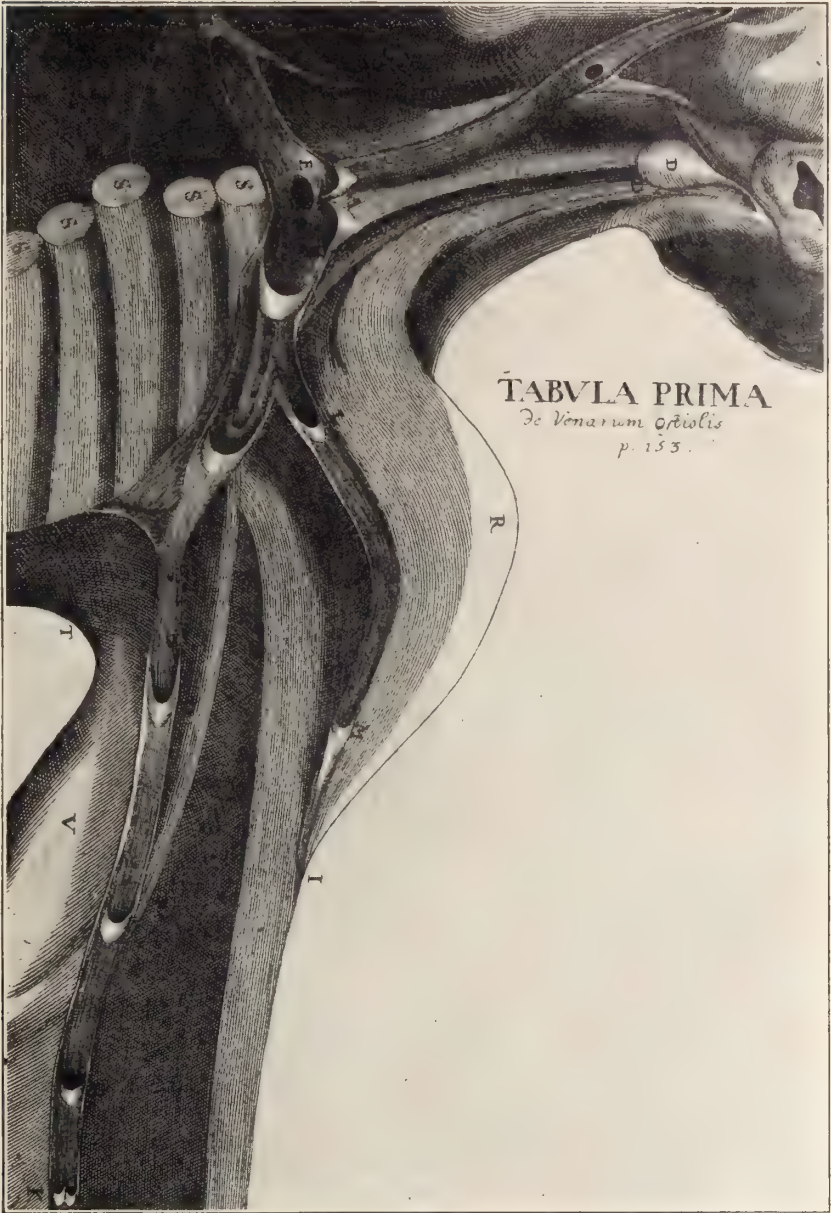
At this University, Fabricius was to come in contact with two of the creative minds of medicine, as the disciple of the one and the teacher of the other, the latter destined to outshine the two former; not only to achieve a fame far greater than that of either Fallopius or Fabricius, but to render a service to science and to humanity which places forever the name of Harvey among those of the few real immortals. The young Englishman matriculated at Padua in 1598, a date conspicuous as that of the publication of the Edict of Nantes.

Fabricius's teacher was the great Fallopius. All historians agree in saying of him that he took the greatest interest in his pupils and spared no pains to advance their progress. He soon formed a high opinion of young Fabricius, and a warm attachment grew up between them. The young man often visited the elder at his home and dissected and performed operations both on the cadaver and upon the living subject under his master's eyes. After passing his final examinations with brilliancy and receiving the doctor's hat, he was often asked by his old professor to take his place before the classes, when the elder man was called away to visit patients at a distance. The same interest, esteem and consideration which Fallopius had shown Fabricius, Fabricius in turn manifested toward Harvey. That the latter was not unappreciative is shown by his description of his teacher as "a most skillful anatomist and venerable old man." The extent to which Harvey drew his inspiration from Fabricius is shown by the parallel between them pointed out by D'Arcy Power in his charming *Life of Harvey*, (p. 25). "Indeed, when we look at Harvey's work, much of it appears to be a continuation and an amplification of that done by Fabricius. Both were intensely interested in the phenomena of development. Both wrote upon the structure and function of the skin. Both studied the anatomy of the heart, lungs and bloodvessels. Both wrote a treatise '*de Motu Locali*.'" There is something prophetic in the circumstance that another young Englishman following the course under Fabricius at the same time, bore the name of Joseph Lister.

Three years after Fallopius's death in 1562, the Republic awarded the chair of anatomy and surgery to Fabricius, he then being twenty-eight years old. For the next ensuing nine years he did not lecture, but limited himself to dissecting and operating before his classes.

He built an amphitheater out of his own means. This later gave place to a finer one erected by the Republic. Power thus describes this building.

*It was at Padua at St. Francis Hospital that Oddi and Botoni made the first attempt in Europe at real clinical teaching. This was in 1558, a year or so after Fabricius' graduation.



Illustrating the valves in the veins. (From *De Venarum Ostioliis*.)

which still stands: "It is now an ancient building with circular seats arising almost perpendicularly one above the other. The seats are nearly black with age, and they give a most venerable appearance to the small apartment, which is wainscoted with curiously carved oak. The lectures must have been given by candlelight, for the building is so constructed that no daylight can be admitted. The government had placed an inscription over the entrance to commemorate the liberality as well as the generosity of Fabricius, who had built the former structure at his own expense."

His talents and industry brought him great rewards in the way of a large practice, a salary from the Venetian Senate of 1,000 gold scudi a year, with the right of wearing a robe of purple and gold, and the golden collar of the Order of St. Mark. He was granted precedence over all other professors. He finally died in 1619, full of honors, at the age of eighty-two. Portal says of him: "Il était ami tendre généreux & désintéressé." (*Hist. de L'Anat. Tome II, p. 197*), and that great numbers of people were devotedly attached to him. Among his students, besides the great Harvey, were Casserius, originally a servant in Fabricius's household, and whom he took under his special tutelage, as he himself had been taken by Fallopius, and Gaspard Bauhin, who first gave a correct description of the appendix vermiformis. We learn with interest that at the same time that Harvey, Casserius and Bauhin were following their medical studies under Fabricius, a young Frenchman, later to win laurels in other fields, Francois de Sales, was attending the course in law at the same University, while occupying the chair of mathematics, was Galileo.

Let us now pass on to an examination of this volume "*Opera Omnia Anatomica & Physiologica*." In folio, Leipsic, 1687. This date is sixty-eight years later than the author's death. This copy will possess an added interest for some of you from the fact that it was presented by the late Dr. William Dickinson of this city to the elder Dr. Boislaniere and by the latter to me. There were numerous earlier editions of Fabricius's separate works, but this, as we are told on the title page, is the first time the treatises on anatomy and physiology were ever issued in one volume. Fabricius's surgical writings are not here included.

The volume commences with "*De Formatione Ovi et Pulli*," illustrated with seven full-page copper plates. More than ten generations of physiologists have unceasingly labored since this work was written, and yet, all things considered, it is wonderfully full and correct. A quaint passage (p. 31) describes the method by which the chick finally issues from the egg, and may be epitomized as follows:

"The chick needing air, by its chirping notifies its mother that it is time to break the shell, its own beak being too soft and the shell too hard to permit of its liberating itself. There is, however, sufficient space and air in the egg to permit of the chick chirping with sufficient loudness to

make itself heard, as both Pliny and Aristotle bear witness. Perhaps these sounds have somewhat the character of a prayer, (*fortéque quidpiam petentis significatrix.*) The hen hearing this sound, and understanding how necessary to the chick is a freer supply of air, or if you please, eager to behold her chick and most dear child, (*pulli dilectique filii conspiciendi desiderio*), pecks open the shell." The error of this description was pointed out some years later by Harvey, who correctly insisted that the chick makes its final escape from the shell without the aid of the hen. Next follows *De Formato Foetu*, in which the author draws largely on the opinions and work of his predecessors, fortified and illustrated by his numerous researches bearing upon the comparative anatomy of gestation. This folio contains thirty-three full-page plates figuring pregnancy in man, the sheep, cow, horse, swine, dog, rat, mouse, guinea-pig (thus early a contributor to science), the shark and the serpent. In fact, it is on this work, together with his observations on the valves of the veins, that Fabricius's chief claim to the admiration of posterity must rest. It is not extraordinary that he should constantly defend certain errors. Thus he maintains (p. 36) that the vessels of the placenta communicate with those of the uterus, although Arantius had proved the contrary some years before. According to him, man has no allantois. It was generally believed at that time that the amniotic fluid was urine, some holding that it escaped by the urethra, although the prevailing opinion was that it passed along the urachus and umbilical cord, spread out between the chorion and amnion, and filtered out through the latter. Fabricius declares that it passes out in this manner to the chorion. However, he holds that the urachus does not consist of a single tube, but of a bundle of minute hollow fibres (p. 44).

Next follows "De Ventriculo, Intestinis et Gula," containing among other things an interesting account of human rumination with the citation of two cases (p. 137). The father of one of these individuals bore on his forehead a horn of the thickness of the little finger, and the length of a Spanish olive, whence, he observes, "we may perhaps infer that his ancestry bore some affinity to that of horned animals, and it was not strange for a begotten son to have inherited from his progenitor something similar."

We now come to "De Venarum Ostiolis." Although Fernel, Sylvius (about 1555), Amatus Luzitanus and Cannanus had written of valves in the veins, their descriptions were vague and left much to be desired. Sylvius indeed does not seem to have considered them as normal and constant structures. Eustachius and Fallopius had denied their existence. Fabricius presents the subject in clear and unmistakable fashion. Seven full-page plates depict these *ostiola* or little doors in various veins. He arrogates to himself the full credit for the discovery, expressing his surprise that no ancient nor modern anatomist should ever have seen the

valves until 1574, when he first beheld them *summa cum laetitia* (p. 150). Yet he could hardly have ignored the work of those who preceded him, since his preceptor, Fallopius, had written on the subject criticizing them. It is a sad commentary on the paralyzing effect of blind reverence for human authority, that Fabricius failed to perceive the full significance of his discovery, although he correctly describes and figures the direction in which the valves open. Although he noticed the effect of ligation about a limb in distending the veins and rendering prominent their valves, he never took the next, and as it seems to us, obvious step, the discovery of the fact that the blood in the veins flows towards the heart. This was left for the more logical mind of his great pupil of undying memory. On the contrary, he explains the use of the valves by saying that they check the excessive torrent of flow toward the extremities and thus prevent their congestion. The latter statement contains a germ of truth, but not as he understood it.

The article on the respiration includes a long commentary on Galen's treatise on the same subject, and contains some errors, as where he enumerates thirty-four intercostal muscles on each side instead of twenty-two (or does he perhaps include the levatores costarum under this term?).

The description of the eye is more full in its physiology than its anatomy, and contains four plates and a dissertation on optics, with many figures in the text.

In the treatise "De Aure" he describes the external ligament of the malleus, considering it, as did all others for a long time, as a muscle. Portal blames him for not giving the credit of the discovery to Eustachius. But the muscle figured in the *tabulae anatomicae*, as you may see in this copy,* is evidently the tensor tympani. He ascribes the discovery of the Eustachian tube to Aristotle and nowhere mentions Eustachius, except to oppose him.

Fallopius had described the cochlea, but Fabricius sees in it only a formless mass of cavities of which no exact description can be given. "Vanus enim, ut puto, omnis erit susceptus labor, quinimo facile (ni fallor) quisque credit eas sine ullo ordine et fortuito potius quam ullius usus gratia conditas esse." (p. 252). (For all such labor will, as it seems to me, be useless. Rather is it easy, if I mistake not, for any one to believe these cavities to be without any order and rather to be constructed by chance than for any use.) This article is illustrated by a plate and is followed by the chapter "De Larynge," with six plates, and another "De Locutione," with one plate.

The treatise "De Loquella Brutorum" contains some curious statements. Our author contends that every animal species has its own language and records instances of persons who could understand them. In support of his belief that men may learn to understand the speech of animals, he adduces the following original argument (p. 327): "Si enim bruta

vix disciplinæ capacia, intelligunt dum homines ad ea loquuntur, profecto longe facillius est ut ab hominibus bruta intelligantur." (For if brutes that are scarcely capable of instruction understand when men speak to them, it should be far easier for man to understand brutes.)

Several long articles are devoted to the physiology of the various forms of locomotion, as walking, swimming, flying and crawling.

After a description of the structure of muscle and of the joints, Fabricius gives an account of the integument with reference to its comparative anatomy, and a description of the scales, hair and feathers of various animals.

I cull from Portal (*Histoire de L'Anatomie*) what follows in regard to his surgical teachings.

He treats at length of the surgery of the cranium, giving very full directions for trepanning. Incisions into the skin of the face for the relief of ocular diseases are discountenanced, but bleeding from the frontal vein may be practiced. A seton at the nucha is preferable. He mentions that the application of the actual cautery at the back of the neck was practiced in Florence upon new-born infants as a prophylactic against epilepsy and apoplexy.

Much attention is given to surgical conditions of the eyelids, but Fabricius believed that topical applications will often be successful and make surgical intervention unnecessary. This leads him to express a thought which some of our modern surgeons might ponder with profit. "*Chirurgia omnino dimittenda est, quando medicamentum sanare potest.*"

An operation for cataract is described, and one for pterygium. In the latter he used a speculum consisting of a leaden ring to be slipped between the lids, and took pains to spare the caruncle. The cautery is advised for the cure of lacrimal fistula.

A new instrument for the removal of nasal polypi is described. Fabricius tells us how to operate for harelip. In cancer of the lip former writers advised the use of a razor heated to redness, but our author prefers a sharp piece of wood or horn dipped in aqua fortis. The part should be dressed with a fresh egg. When inflammatory conditions about the jaws prevent separation of the teeth, patients may be fed by means of a curved canula inserted through one of the nares. Several instruments for the extraction of teeth are mentioned, as well as artificial teeth. Ranula and various affections of the tongue, uvula and tonsils have their appropriate surgical measures. The removal of foreign bodies from the esophagus is considered.

Many surgical conditions of the ear are mentioned, the closure of the auditory canal in children by an adventitious membrane, and foreign bodies in the ear. The removal of the latter is minutely described.

The author has devised an apparatus for torticollis.

Tracheotomy is advised only when the obstruction lies above the trachea

proper. "In summa ubi affectio et materia est tantum a larynge supra, incidendum; ubi vero a larynge infra, abstinendum." Thoracic empyema is to be relieved by an intercostal incision which should be at first very small and enlarged later if needful. One should not seek to evacuate all the pus at first, but on several successive occasions.

An infusion of Periwinkle (*Vinca minor*) is lauded as an infallible galactagogue. In mammary cancer one should carefully determine whether the gland is free from the thoracic wall. If so, it should be removed at one stroke with a red hot knife, or with a sharp instrument of horn or wood dipped in aqua fortis. If the breast be fixed to the ribs the section should be limited to the skin and the mamma peeled off with the nails. Should there be much hemorrhage, the surface may be dressed with burned silk.

Among other abdominal operations, application of the cautery to the stomach, liver and spleen are mentioned. Fabricius does not endorse these procedures, but quotes from an old master "Satius est sine re patientes mori quam occidere." Puncture is only to be resorted to in ascites when all other means, such as scarification of the scrotum, buttocks and lower extremities have failed. For renal suppression, diuretics having failed, the author recommends friction over the bladder with oil of capers. He was acquainted with the catheter. The parietal fenestrum was introduced at about that time. The surgery of stone in the urinary bladder, and that of the prepuce, glans and meatus are treated of.

The existence of hermaphrodites, denied by certain previous writers, is affirmed. Certain surgical conditions of the vagina and of the anus and rectum are described. For the cure of piles, lukewarm water, leeches and cupping are advised, followed by the actual or the potential cautery. He speaks of affections of the extremities and of the measures indicated for their relief. I think we may recognize Dupuytren's contraction in a description of crooking of the fingers due to a shrinking of the tendons, in which no operation should be attempted, the disease being incurable.

The second part of Fabricius' surgical writings was published in German under the name of the *Pentateuch*. Its five books in their order treat of tumors, wounds, ulcers, fractures and dislocations.

While Fabricius was a man of vast erudition and drew largely on the writings of his predecessors, he also exhibited much originality. It has been said that he borrowed his best ideas from Paré. This Portal energetically opposes, notwithstanding his natural zeal for the glory of his great compatriot, and supports his thesis on the grounds, first, that the surgical principles of Paré and those of Fabricius are for the most part diametrically opposed, and second, that there is no vestige of proof that these two great men ever met.

We may terminate this sketch, already grown to undue proportions, with Boerhaave's estimate of our author. (*Consilia ad Chirurgos*) "Superavit enim omnes et nemo illi hanc disputat gloriam."

**Tabulae Anatomicae Clarissimi Viri Bartholomaei Eustachii, with text by Lancisi, Roma, MDCCXXVIII.*

EDITORIAL.

THE PATIENT AS INTERPRETER.

It may well be worth the trouble to study certain aspects of medicine from the point of view of the patient instead of that of the physician. That the patient may be able to throw light upon the nature and the symptoms of his disease is something easily lost sight of. The mental aloofness which custom has decreed to be the proper attitude between patient and doctor is perhaps a cause of the neglect of the patient as a source of information. Your layman, as a rule, when sickness lays hold of him, is not nearly so ignorant of medicine as the physician thinks he is. The patient knows many things that are in a sense a heritage from the almost forgotten past when medicine was, more commonly than it is today, the business and property of the people. If we examine into the thing that we are fond of calling medical superstition, we shall find that a certain amount of truth is hidden there.

It is always well to remember the dictum of that great philosopher who said that the beliefs of the great mass of humanity extending through generations must of necessity contain some essential element of truth. Nowhere, perhaps, can this tendency be better shown than in some of the lay opinions concerning disease. These have shown a surprising amount of vitality even to this day, and they have not been materially weakened by the attacks directed against them. There is a striking quality of tenaciousness about them which is in strong contrast to the ebb and flow of medical opinion on the same subject. Scientific opinion swings to and fro from the extreme view of one generation of physicians to the narrow view of the next; the people's view on the contrary goes in a straight line through generations, strengthened by the accumulated mass of experience. It becomes firmly entrenched in the common mind through some apt and dramatic descriptive phrase that seemingly touches the soul of the thing.

The layman knows, and his belief is in no way disturbed by the wisdom of the physician, that herpes zoster is always found on one side of the body except in those rare cases when the two sides are attacked at the same time. If this happens the man is sure to die. Such a view as this means the accumulated observation of countless individuals, and on the whole who shall say that it contains no truth and no justification. Many a conclusion cooked out in our own laboratories and served red hot in the special journals contains less.

Beliefs or superstitions of this nature are frequently clothed in terms so nicely descriptive that our own attempts at a proper nomenclature seem

almost futile. One or two examples will show the talent of the people for descriptive phrasing.

The paralysis which follows the apoplectic attack was well known ages ago and the whole phenomenon, dramatic and unusual as it is, came to be known by the name "stroke." It must be admitted that the descriptive quality of this term is striking enough. The paralysis which came on gradually, mysteriously and without any apparent cause was given the name of creeping paralysis. To the lay mind with its power of simple observation and the natural descriptive sense in a mind that sees straight, a term such as this described so well what he saw that there was never a necessity to change it. The whole nomenclature of disease probably contains no more fitting phrase. To have called epilepsy the "falling sickness" illustrates the same sort of grasp on the essential characteristic of this disease. The point which these examples would prove is that an intelligence that can observe so accurately and can name so fittingly is worthy of serious attention.

Many an obscure feature of disease may be illuminated by the power of observation which the sick as well as the healthy share in common, and the wise physician will take advantage of this power and seek to cultivate it. This talent for untrained observation is one of the primitive traits that has made the preservation of the human race possible.

It must be remembered that sickness from the patient's point of view, and all of us are patients at one time or another, is largely a matter of personal experience. Personal experiences the world over are legitimate objects of observations and comment. Their expression in an intelligent way may add just that little mite to the sum of human knowledge which it is the ambition of scientific medicine to increase.

After all the gist of the matter lies in the idea that there should be a readjustment of the relation of physician and patient. The veil of mystery which exists today between the two, largely the result of the physician's endeavor to have it so, should be taken away and give place to a more intimate and a more intelligent relationship. It is well in the first place to make better use of the patient's power of observation of the abnormal happenings in his own person, being sure that such observations are to be accepted with the respect that they deserve.

COMMENT.

FRITZ SCHAUDINN.

On June 22nd a septic disease cut off from the pursuance of a course of investigation promising incisive results on wide and important biologic problems, a man, who, in the short 35 years he was allowed to live, had succeeded in ranking with the foremost representatives of modern science. His name was known all over the world as the originator of a new branch of biology, the study of protozoa from a point of view that did not leave them protozoa, but showed them in their intimate relations to the structure and development of metazoic organisms. There is no doubt that Schaudinn's cytologic results on protozoa will in the future have a far-reaching influence in the general teaching on what is called cells. There has been no man before Schaudinn who with similar logic and intent has attacked the problem of pathogenic protozoa. His studies on the tertian and estivo-autumnal parasite have today united the different conceptions of other observers, so that now there is a uniformity of opinion on the character and nature of the cycle of the parasite, on its relation to other organisms and on its relation to the animal and human hosts. His studies on sporozoa, mainly the coccidia, is classic and full of new suggestions for fundamental questions. His admirable work on *trypanosoma noctuae* and a *spirochaete* have opened views that will remodel the principal conceptions of propagation and multiplication. They will, besides, transform the classification of protozoa in a way that today can hardly be indicated. Schaudinn has been recognized as the highest authority on protozoa and as a man who at last has opened the way for a deeper insight into the life and development of these organisms.

His discovery of the etiologic factor of syphilis has crowned his life and has made his name immortal. How many other not less enduring crowns would this man have gained had he lived out his life! A genius, whose work promised the elucidation of the deepest and most important, but as yet totally obscure, biologic problems.

The loss by sudden and premature death of a man like Schaudinn is greater than that caused by the death of a Virchow or a Humboldt. Their death was not a loss. They had given us all that they could give. Schaudinn was in the beginning of his career; what he had done aroused the greatest expectations. We cannot be submissive in such a calamity; the loss is one which not alone arouses our sympathy, but is more than all an impediment in the progress of a knowledge of subjects immensely important for the future of our race. The loss is actual, because whoever knew Schaudinn knew that all he had done so far was only an introduction to the solution of problems much wider and more extensive in their scope. We are deprived of that. All we can do is to follow his spirit, to try and walk in his steps, guided by the light that he has thrown out.

We have lost a man who can be replaced only by the devotion of many to the principles established by him.

MONUMENTA MEDICA.

Poor health forced Dr. Schaefer, the former director of the Insane Asylum Friedrichsberg in Hamburg, to retire from active practice. Looking for something to fill the hours of involuntary leisure he turned to his "oldest friends," the Latin and Greek classics. We may believe his assertion that he now enjoyed them more than he did some thirty years ago when he could translate but not understand and appreciate them. In his readings he came across many paragraphs that should prove of interest to the physician. He has just published a collection of them in a little volume, entitled, "Monumenta Medica" (Verlag von Gebrueder Luedeking in Hamburg). This book offers much entertaining and instructive reading. It contains a great number of quotations which throw an interesting light upon the amount of knowledge possessed by the old classic writers concerning the nature and symptoms of many diseases which cannot fail to attract the attention of the medical historian.

A few of the numerous quotations are offered here in English translation on account of their bearings upon topics which at the present day are widely discussed:

Licurgus' Views on Criminal Abortion. (Quoted from Plutarchus' biography of Lycurgus.)

He also died shortly afterwards and everybody expected Lycurgus to be the next king. He actually took possession of the throne before it became known that his brother's widow was pregnant. When this knowledge came to Lycurgus he announced that the child, if a son, should be the crowned king, and in the meantime he would reign as *prodicos* (curator). Secretly the queen sent word to him that she was willing to have the child removed from her womb if he would agree to marry her and make her queen.

Although abhorring the woman's suggestion his answer was not in the negative. He pretended to accept her offer and warned her not to jeopardize her life by an operation or by the use of poisonous drugs. He himself he said would see that the child was put out of the way immediately after its birth.

In this manner he deceived the woman until the time when her confinement was near at hand. He then sent trustworthy servants to her house, to watch carefully, and he ordered that if a girl be born she should be placed under the care of the women, but if the newborn be a boy, he should at once be brought to the palace. Lycurgus was dining with some notables when the queen was delivered of a boy who was carried to the king immediately. Taking the boy into his arms, Lycurgus exclaimed: "Spartans, a king has been born to our nation."

The multiplicity of modern specialists undeniably implies a certain disadvantage to the patient in various respects. Probably all patients

and most physicians believe that this tendency of specialization in the practice of medicine is the direct result of the modern trend toward the division of labor. The following quotations clearly prove the incorrectness of such a view:

From Herodotus:

The practice of medicine is by them (the old Egyptians) divided up as follows: Every physician is only for one disease and not for many, and, therefore, there are physicians in abundance. They have physicians for the eyes, physicians for the head, physicians for the teeth, physicians for the stomach and physicians for other internal diseases.

In "Nigrinus" Lucianus says:

I had to go to the city (Rome) to see an oculist, because my eye trouble had become worse.

The following noteworthy instance of animal experimentation and vivisection on the human being is described by Plutarchus in "Antonius":

In the meantime Cleopatra collected a great variety of deadly poisons and with each of them she made experiments on criminals condemned to die, her desire being to ascertain whether its action was painless. She observed that those which caused death quickly also produced great pain, while those which did not cause pain acted slowly; therefore she also made experiments with poisonous animals, which, in her presence, were made to bite other animals. This she did daily and finally observed that only the bite of a poisonous serpent leads to the loss of consciousness not accompanied by any convulsions or moaning.

CORRESPONDENCE.

San Francisco, July 14, 1906.

Editor Interstate Medical Journal:

In your July issue of the Interstate Medical Journal, page 612, are some notes on ectopic pregnancy; in the first of which arises the question of *ovarian* pregnancy.

About five years ago I operated on a case in which I found a twin pregnancy existing. One in the tube, which had ruptured, and one in the ovary, on same side, unruptured.

I did not find the ovum which had escaped from the tube, but on rupturing the ovarian sac, which was as large as a small walnut, the forming fetus could be plainly seen.

I kept both specimens up to time of our recent great fire, when I lost absolutely everything in my office.

I have operated something more than twenty times for extra-uterine pregnancy and in every case the pregnancy was on the right side. I have also seen a few cases in the hands of other surgeons, and they also were on the right side. So I have my first case to see on the left side, though I operated on the wife of a physician of Falls City, Neb., for right tubal pregnancy, who had previously been operated on for like trouble on the left side.

Yours,

140 Sixth Ave.

M. E. VAN METER, M. D.

MEDICAL AND SURGICAL PROGRESS.

INTERNAL MEDICINE.

IN CHARGE OF

JESSE S. MYER, M. D.

HEMORRHOIDS; THEIR CAUSE, SYMPTOMS AND TREATMENT.—Kuhn (*Der Arzt als Ersicher*, hist 22).—Kuhn writes exhaustively on hemorrhoids in this article. He considers anatomical conditions of importance with regard to the production of hemorrhoids including the complications of hemorrhage, infection, strangulation, fistula and irritation. He gives the etiology as (1) indirect or general: (a) individual disposition, (b) abuse of alcohol, (c) chronic diseases, as diabetes, tuberculosis and blood diseases, (d) variable influences, excessive eating and drinking, misuse of cathartics and constant use of rectal injections, confinement and certain occupations. (2) Direct: (a) Depression in the large intestines, certain occupations, as wind-blower's constipation, passive congestion of the hemorrhoidal veins, chronic colitis, diarrhea, heart and lung diseases. He says the general symptoms are usually due to the underlying cause, liver or gastro-intestinal disturbances, but that also such important symptoms as palpitation, dyspnea, pyrosis, cold feet, anorexia, chilly sensations, are probably due to general circulatory disturbances. Local symptoms are, tickling and pruritus of the rectum, and even painful sensation and feeling of distention and heaviness, sometimes pressure on the abdomen, foreign body sensation in the rectum, localized pain, which may be so great as to make bowel movements apprehensive with tenesmus, prolapse with or without strangulation, infection and secondary colitis. The physical findings of hemorrhoids are made by inspection with or without a proctoscope, by means of a small sponge tied to a string introduced into the rectum to pull the rectum down for inspection. Intussusception in children is differentiated by its ring form, polypi by its pedicle, abnormal mucous covering and the age at which it occurs. Tumors of the rectum are not so rich in blood, and carcinoma of the rectum should early be differentiated.

Treatment. (1) Prophylaxis: (a) The careful selection of soft toilet paper or cotton surrounded by clean toilet paper; (b) careful hygienic bathing with careful attention to the rectum, local or general baths following defecation; (c) local applications of vaseline or lanoline, reduction by massage of protruding mucous membrane. (2) Active: (a) Correction of gross mechanical causes, as tumors, gastro-intestinal disturbances, ascites, etc.; (b) regulation of the bowels; (c) diet; (d) physical exercise; (e) hydrotherapy; (f) pessary. He describes in detail many different forms of rectal pessaries, with one of his own; some he recommended most heartily. Under local applications he classifies the following: (1) Ointments for lubrication; (2) anodynes; (3) healing ointments; (4) cathartic senments. As to operative treatment he says that in many cases operation is not necessary and should be

a last resort in those cases which cannot be modified anatomically and symptomatically by medical or other treatment.

ALCOHOL AND ALCOHOLISM.—Kurt Bieling (*Der Arzt als Erzieher*, hist 23).—The author of this article writes very exhaustively on (1) alcohol and alcoholic drinks; (2) physiologic effects of alcohol; (3) alcohol and disease; (4) alcohol and death; (5) alcohol and injuries; (6) alcoholism as to mortality; (7) heredity; (8) its prophylaxis, etc.; (9) the doctor and alcohol. He says the most important point concerning alcoholism is ethyl alcohol which is present in from 2 to 80 per cent. in all alcoholic drinks. Among other things fusel oil is one of the deleterious ingredients of the cheaper alcoholic drinks. He shows their physiological action on the gastro-intestinal tract, cardio-vascular and nervous systems and other organs, by pathological findings and experimental research. That alcohol has a predisposing and continuing influence on the cause and duration of disease of all the systems he accepts without question. That alcohol has increased the death rate of tuberculosis, typhus, and accidents five times and that it has increased the mortality of other diseases from 5 to 10 per cent. is shown by tables. He gives statistics concerning its malicious effect upon the morality and the hereditary influence of the masses. As prophylaxis he gives (1) limitation of non-distilled drinks, and (2), total abstinence. He says the medical profession must take the initiative in discouraging and interdicting the use of alcohol in order to prevent these evils and protect humanity.

EXPERIMENTS ON THE MECHANISM OF THE STOMACH SECRETION AFTER A TEST BREAKFAST.—Kast (*Berliner Klin. Wochensch.*, No. 22, May 28, 1906).—From the literature on this subject and experiments on animals the author concludes that the secretions of the stomach are influenced in many ways, viz., (1) Reflex: Central stimulations by means of the subcortical centres are carried to the stomach by way of the vagus. (2) Psychic: Through a physiological correlation of many cortical centers stimulations arise which pass the impulses to the nuclei of the sensory nerves. (3) Mixed: Peripheral impulses accompanying impulses of the subcortical centers of the cortex are carried to the secretory nerves. (4) Probable reflexes through the sympathetic: The latter was proven to be present even with bilateral vagiotomy and stimulation of the abdominal organs.

AN ANALYSIS OF FORTY CASES OF MENINGITIS IN INFANCY.—Morse (*Jl. Amer. Med. Assn.*, Vol. XLVI., No. 25).—Morse concludes from this analysis that the comparative symptomatology of the two types of meningitis differ from the usual conception. The onset of tubercular meningitis may be sudden, with convulsions, and it may be incipient, as long as two weeks, in the cerebro-spinal type. The duration may be very short in tubercular, a week or less, and prolonged in cerebro-spinal. The temperature, pulse, respiration, mental condition, bowels, vomiting, convulsions, pain and behavior of eye muscles were practically the same. Spasms of abdominal muscles were absent in both. Neck symptoms,

paralysis, spasms of extremities, Kernig's sign, increased cerebral pressure, were more marked and constant in the cerebro-spinal form. In 5 of the 20 tubercular cases there was no history, or other findings of tuberculosis. Improvement in the symptoms and comfort was noticed after each lumbar puncture. This was only transitory and had no effect on the disease. He says a positive diagnosis between the two forms is impossible from the symptomatology and can only be made on examination of the cerebro-spinal fluid.

THE PRODUCTION OF LACTIC ACID BACILLUS IN CARCINOMA OF THE STOMACH.—Sick (*Deutsches Archiv. f. Klin. Med.*, Bd LXXXVI, H. 4-5).—That these bacilli are found in many other conditions aside from carcinoma of the stomach he feels satisfied. They can be cultured from the intestines in people with a decreased acidity; but they are not found in those neoplasms in which free Hcl is present. The disturbance of motility and the self digestion (autolysis) of the carcinoma are important factors for their development.

For clinical examination the presence of fatty acid is not such a certain sign upon which to make a diagnosis of carcinoma as is the presence of lactic acid.

THE VALUE OF X-RAY EXAMINATION FOR THE EARLY DIAGNOSIS OF APICAL TUBERCULOSIS OF THE LUNGS.—Adam (*Berliner Klinische Wochen.*, June 11, 1906).—All cases in which physical examinations showed difference in percussion note, or changes of breathing, etc., more or less diffuse or circumscribed shadows were demonstrated by the x-ray. This was also present in cases in which catarrhal symptoms were found on physical examination and also in some cases in which the physical findings were negative entirely. He concludes that in those cases in which there is infiltration the conditions were discovered earlier with the x-ray than by means of physical examination. The second lot of cases in which there was a chronic infiltrating process without catarrhal symptoms, the diagnosis could be made earlier by x-ray than by physical examination. Adams concedes it would take more observations to determine by x-ray the kind of pathological process present.

A CASE OF SPONTANEOUS GASTRO-ENTEROSTOMY ANASTOMOSIS.—Kern (*Wien. Klin. Wochens.*, May 17, 1906).—This report of a very interesting case of the production of a spontaneous gastro-enterostomy by perforating ulcer of the stomach with a detailed post-mortem finding and clinical history by Kern, is as follows: Symptoms had been present about six weeks previous to death consisting of anorexia, frequent vomiting, acid eructation and pain beginning at the region of the navel and radiating into the lower left abdominal region. The findings were tenderness over the liver, retraction of the abdomen and rigidity. After two weeks a small prominence appeared in the epigastrium during inspiration, being freely movable. Stomach contents were brown in color, acid, contained fat droplets, long bacilli yeast cells and Tiechman's crystals. The vomitus contained bile at various times. Feces were fluid and brown, containing blood, and passed four times per day. Stomach

was enlarged on inflation. Kern found four other cases reported in the literature. More or less positive diagnosis of carcinoma had been made in all the cases.

MICROSCOPIC EXAMINATION OF THE STOMACH CONTENTS AS A MEANS OF DIAGNOSING CARCINOMA OF THE LESSER CURVATURE OF THE STOMACH.—Ziegler (*Zeitschr. f. Klinische Med.*, Bd LVIII, H. 5 and 6).—Ziegler says that the induration of carcinoma of the lesser curvature causes decreased motility of the stomach. In these cases lactic acid bacillus, or the thread bacillus are found microscopically. Examination is made as usual two and a half hours after test breakfast free from lactic acid, or seven hours after a test meal showing no microscopic findings, (or two hours later), or on an empty stomach A. M. Microscopic findings show bacilli, starch muscle fibres and leucocytes on top of each other, the latter never being found in chronic gastritis, which findings demand a diagnosis of carcinoma ventriculi in an early stage (before the presence of blood, palpable tumor, ascites or glands). Lavage does not change these findings. Therefore in cases in which the stomach appears to be empty microscopically, leucocytes, food-stuff and bacilli are found in the washings and the diagnosis of carcinoma of the stomach is indicated. He was able to diagnose two cases of beginning carcinoma of the stomach by this method.

CHEMISTRY OF SECRETIONS OF STOMACH WITH SPECIAL INVESTIGATION OF SALOMON'S TEST FOR CARCINOMA OF THE STOMACH.—Reicher (*Archiv. Verdanungs Krankheiten*, Bd. XII, 3).—Reicher in repeating Salomon's test for carcinoma of the stomach on 23 cases, of which 5 were carcinoma; 4 were achylia; 3 chronic catarrh; 2 chronic ulcer centricula; 3 normal; demonstrated Salomon's test positive in 7 of which 4 were carcinoma; 2 achylia and 1 subacidity. The test recommended by Salomon is as follows: (1) Patient receives fluids, A. M., and fluids and food free from albumen at 2 P. M. (2) Stomach is washed clean 9 P. M. (3) Abstinence of everything during night. (4) Stomach lavage twice with 400 cc. physiological salt solution next A. M. (5) This solution is tested with Esbach's and Kjeldahl's method for total solids. Salomon's conclusions are as follows: (1) In all cases of carcinoma of the stomach Esbach's reagent produced a flocculent precipitate and Kjeldahl's method showed more than 25 mg. total solids per 100 cc. (2) The majority of the other stomach affections (nervous dyspepsia, chronic gastritis, gastropnoia) produced only at most a slight cloudy precipitate with Esbach's and 16 mg. Kjeldahl. (3) These findings (as in 2) were also present in chronic ulcers. Fresh painful ulcers were not examined. (4) When no flocculent precipitate was present with Esbach's, ulcerative processes in the stomach were thought improbable. Reicher gives the results of Siegel, Berent, Gutmann and Richtenstein, all of which have shown more or less uncertainty of this method.

He shows that this reaction can take place in the presence of serum albumen, serum globulin, albumosen, peptones, nucleo-proteids, purin-bases, mucin and mucin-like bodies as all these are precipitated by Esbach's reagent.

By numerous experiments he shows the influence of each one of these products on this test and points out many errors and false deductions to which it is subject.

DIABETES: ETIOLOGY AND TREATMENT.—Burwinkel (*Der Arzt als Erzieher*, hist. 24).—Burwinkel says that in 400 cases by French, 206 occurred between 40 and 60, 5 between 1 and 10, 42 between 30 and 40, 70 between 40 and 50, 2 between 60 and 70, 29 between 18 and 20, and 5 after 70. It has been present at seven months and at 81 years. Males to females is 3-1. Females in younger ages, especially during the menopause. He says that diabetes should be classified as a disease of metabolism or a constitutional disease; that no localized cause (?) has yet been established; that the normal urine contains a trace of sugar and blood; that if from 50 to 200 gms. of glucose is introduced into an empty stomach the urine contains sugar without the presence of organic disease. It is also normal in pregnancy and a few days after birth. That it is present in poorly nourished people (Hopp-Schiller); that shock and anxiety (Von Noorden), intoxications, carbondioxide, morphine, amylnitrite, alcohol and blue saure produce glycosuria. Etiological factors are heredity (gout, adiposes, uric acid diathesis and neurosis), alcoholism, sailors and people whose diet is composed mostly of sweets and carbohydrate; infections of the pons and fourth ventricle and cranium (tumors, hemorrhages, softening, epilepsy and apoplexy). The affections are also frequently accompanied by emaciation and other symptoms of diabetes. Psychical disturbances, as fright, etc., and changes in the pancreas. People of the upper class seem to be predisposed. He reports a very interesting case of a hysterical woman who injected sugar into her bladder in order to simulate this disease. Among the atypical symptoms, weakness, malaise and loss of physical energy may be the only complaint for a long time. Contrary to the rule, decreased appetite, distension of the abdomen, vomiting and irregular bowel movements are sometimes early symptoms. Patients often complain of tape worm symptoms, or rheumatism and constant pruritis. Diabetic rhinitis sometimes causes the most disturbing symptoms and in children incontinence of urine. He says it is not uncommon to have a diabetes cause nephritis and also have sugar in the urine in a case of contracted kidney; that angina pectoris and phthisis occur as complications of severe forms of diabetes. As to the course Seegen observed no cures in 400 cases treated by Karlebab. Naunya and Wientric considered the prognosis as to cure unfavorable. Cantim reported 50 entirely cured in 218 cases. Young persons are specially liable to short, rapid course. Slow progression is a favorable sign. Excessive exercise and mental exertion frequently cause death by coma. Death is sometimes caused by secondary conditions. As to prophylaxis and treatment, he considers diet as most important. Large amounts of water are harmful; fresh air and a general hygienic condition of the skin are necessary. Mental control is absolutely indicated. Constant medical observation is necessary. Climate and environment are especially helpful in this disease. He recommends the Austrian Rivera, Sicily, Algiers, etc., in the winter for their climate. Vichy and the waters from Schelein and Tomas (Germany). Nanheim, Karlsbad and the baths in those places are specially recommended.

PATHOLOGY AND BACTERIOLOGY.

IN CHARGE OF

CARL FISCH, M. D.

A FUNDAMENTAL ERROR IN CURRENT ATTEMPTS TO APPLY PHYSICAL CHEMISTRY TO SERUM PATHOLOGY.—Manwaring (*Jl. of Infectious Dis.*, Vol. III, No. 4).—The application of the law of mass action on immunity reactions, although on general theoretical grounds long since shown to be not justifiable (by Nernst and others), continues to play a part in the discussion of the explanation of the qualitative and quantitative relations between antibodies and antigens. While Arrhenius, Madsen and others continue to search for a formula which will show that the reactions can be dealt with after the mass action law, to none of their opponents has it occurred as yet to make any such attempt futile, *a priori*, by applying to facts experimentally established, which nobody doubts and from which even the physical chemists start as a principle, a scrutinizing inquiry as to whether they could exist if immunity reactions took place after the fashion of the reaction between weak acids and bases. Manwaring has done this in such a plain way that even one not intimately acquainted with the details of the conceptions can easily grasp the conclusive weight of his reasoning. As is well known the reaction between weak acids and bases does not lead to an absolute but only to a relative equilibrium; no equilibrium at all is established if the product of the reaction is different in state from the state of the reacting substances in the solution. If this is the case, the dissociation will continue until one of the substances is almost entirely dissociated. What occurs if a toxin and its antitoxin combine? Physical chemists themselves assume that there is an end reaction, that a certain quantity of the one can combine only with a certain quantity of the other, so that in mixtures of the two substances of quantities not corresponding there must be a surplus of the one or of the other. That this is true has been established by thousands of observations. If toxin and antitoxin unite, or an antibody with a receptor, the union is firm in spite of the presence of free amounts of one of them. No dissociation occurs and it is futile to assume that it may exist, though acting so slowly that it is not noticed in the time taken for an experiment. Opposed to this view is the fact that the period in the determination of the valency of diphtheria antitoxin amounts to four days, and, with any quantity and any combination of both substances, is mathematically the same in all cases. If the interaction of two such substances were that of a weak acid on a weak base, with the production of a third substance heterogenous in state, we would not observe the constancy of proportions on which all modern serum studies are based and which led Ehrlich to establish the law of multiple proportions obtaining to a high degree for the strong acids and bases. The injection of a neutral dose of toxins and antitoxins might possibly lead to intoxication, as through dissociation of the mixture within the fluids of the organism the antitoxin would be constantly liberated, as would also the toxin, and it depends altogether upon the greater number of receptors for each of them which one will finally predominate. This certainly is

in favor of the toxin. This way of carrying the law of mass action into the explanation of immunity reaction is a *contradictio in adjecto* as it is based upon principles and facts by their very nature opposed to it. Physical chemistry cannot judge the processes that are induced by substances not yet isolated. That such substances exist and that their action cannot be the consequence of merely physico-chemical effects, is shown by their specificity and their quantitative reactions with each other.

THE ENZYMES IN PHAGOCYtic CELLS OF INFLAMMATORY EXUDATES.—Opie (*Jl. of Experim. Medic.*, Vol. 8, No. 3).—The work of Opie, only the conclusions of which can be mentioned here, is exceedingly interesting, biologically and morphologically. In the latter it is a step forward in the much discussed origin of the different forms of leucocytic elements, indirectly confirming the doctrine of Ehrlich of the genetic difference of the polynuclear and mononuclear cells present in the circulating blood. The biologic difference between the two classes Opie has found is so remarkable that a genetic difference becomes at least highly probable. They vary in the character of the ferment substances they contain and that enables them to act by phagocytosis as a factor of elimination of superfluous or obnoxious material in the organism. They do this by ferment action; the specific substances were isolated by Opie and investigated as to their enzymotic characteristics. His results are contained in the following words:

"Corresponding with the two types of phagocytes, one the polynuclear leucocyte with fine granulations, the other large non-granular cell derived from lymphoid tissue, there are two enzymes characterized by their ability to digest proteid, the one in a neutral or alkaline medium, the other in an acid medium. I have shown that the enzyme which is active in the presence of alkali occurs in the bone marrow and that the bone marrow, unlike the liver, spleen, kidney and other organs, digests proteid more actively in an alkaline than in an acid medium. Since the polynuclear leucocytes with fine granulation—the neutrophile leucocytes of man—are found in the bone marrow, this enzyme doubtless has the same origin and may be designated leucoprotease. The name lymphoprotease may be given to that enzyme which is contained in the large mononuclear phagocytes since these cells have their origin in lymphoid tissue."

THE DEMONSTRATION OF PRECIPITABLE SUBSTANCE OF COW'S MILK IN THE BLOOD OF ATROPHIC INFANTS.—Bauer (*Berlin. Klin. Woch.*, 1906, No. 22).—The question whether genuine proteid can penetrate undissintegrated the intestinal mucosa of infants has been the object of many investigations and experiments. Behring's suggestion that they could pass through the epithelium of the intestine of young animals stimulated Ganghofner and Langner to experiment on dogs, cats, rabbits and kids; they found by the precipitin reaction that the presence of foreign proteids ingested could be demonstrated in the blood of the animals during the first week after birth. In older animals a lesion of the intestine, produced artificially, had the same result. Hamburger and Uffenheimer, who worked in the same direction, had only negative findings. Schlossman, however, stated that he had found even in the blood of infants precipitins against the

milk of the mothers that nursed them. Bauer obtained positive results in infants suffering from atrophy. The contradictory findings were obtained by the precipitin reaction introduced by Wassermann, Fisch and Bordett. Bauer employed the method based on Moreschi's investigations on complement destruction, which forms a much finer indicator of the presence of amboceptors or antigens. By this method he could, in a case of infantile atrophy, demonstrate the presence of extraneous proteids within the blood. The method is easy in application and if used more widely will soon establish whether such a transition of genuine proteid into the organism of the infant is at the base of the obscure processes leading to infantile atrophy. Perhaps anatomically it may be found what is the histologic condition of the mucosa permitting such transition.

DIAGNOSIS.

IN CHARGE OF

ALBERT E. TAUSSIG, M. D.

THE SIGNIFICANCE OF THE PHLORIDZIN TEST.—G. Kapsammer (*Arch. f. Klin. Chir.*, Vol. LXXIX., No. 3).—The observation of the glycosuria following the injection of phloridzin has not fulfilled all that was expected of it in the determination of renal sufficiency or insufficiency. Kapsammer, however, believes that in one respect the method is trustworthy and useful. If the urine contains sugar 10 to 15 minutes after an injection of phloridzin, one kidney at least is functioning properly. If the sugar begins to appear in the urine 30 minutes or more after the injection, we may infer a serious disturbance in the function of both kidneys. If no glycosuria occurs 45 minutes after the injection, the function of both kidneys may be considered so gravely impaired as to contraindicate a nephrectomy.

FUNCTIONAL DETERMINATION OF THE EFFICIENCY OF THE MYOCARDIUM.—Graeupner (*Deutsch Med. Wochenschr.*, 1906, No. 26).—In the prognosis and treatment of cases of heart-disease the determination of the efficiency of the myocardium is of the greatest importance. In a very interesting article, the writer discusses a method, based on the observation of several hundred cases, which has given him good results. By means of the Riva-Rocci sphygmomanometer he determines the arterial blood pressure before and after the performance of a definite amount of muscular work. The healthy heart reacts with a rise of blood pressure, that quickly returns to the normal. In heart-disease with an efficient myocardium there may be a fall of blood pressure as a result of work, but before long there is a rise which carries the pressure to a point higher than before the work was done, whereupon it gradually drops to the normal again. When, however, the heart muscle itself is inefficient this secondary rise in pressure does not take place. At the conclusion of the muscular work, the blood pressure is found to have fallen; it returns more or less slowly to its original level. In general, the smaller the

amount of muscular work that will produce this fall of blood pressure and the longer the interval until the pressure has again been restored to its original height, the less efficient the heart muscle. The method, it will be seen, involves the determination of the blood pressure before the experiment, immediately after its close and then repeatedly at short intervals until the pressure has again attained its original level. Accurate results are obtainable only when the muscular work is measured by means of an ergometer and when the patient has become somewhat accustomed to the exercises so as not to do them with unnecessary effort. The writer has found that the work which involves the least tax upon the myocardium consists in extension against slight resistance of the leg (*M. quadriceps*) in a half recumbent posture. Flexion of the same limb in the same posture involves much more cardiac effort. Flexion and extension of the arms against a graduated resistance involves somewhat more cardiac effort than extension of the leg. Exercises which necessitate fixation of the thorax tax the myocardium most of all. In this manner, by means of a graduated series of exercises, an almost quantitative estimation of the myocardial efficiency seems possible. The method is, of course, intended not to replace but only to supplement a careful physical examination.

A NEW REAGENT FOR THE DETECTION OF OCCULT BLOOD IN STOMACH CONTENTS AND FECES.—Boas (*Ztralbl. f. inn. Med.*, 1906, No. 24).—The importance of the detection of occult blood in stool and stomach contents is generally recognized. None of the usual methods are, however, quite satisfactory for clinical purposes. Boas has for some time been using a reagent which has for years served in milk laboratories to distinguish raw, boiled and pasteurized milk, as goes under the name of v. Storch's reagent. It consists of a very dilute solution of p-phenyldiamin and the subsequent addition of hydrogen dioxide and, with certain modifications, has shown itself useful for the recognition of digested or otherwise altered blood.

The method is as follows: The suspected stool or stomach contents is rubbed up in the usual manner with a very little glacial acetic acid (about 20 drops); it is then shaken up with ether and to the ethereal extract are added 1 or 2 drops of a very dilute solution (1:200) of p-phenyldiaminhydrochlorate. As the reaction is very greatly hindered by an acid reaction it is well to add also 1 ccm. of a half normal alcoholic solution of potassium hydrate. Finally 10 to 15 drops of 3% hydrogen peroxide are added and the mixture briefly shaken. In the presence of occult blood an olive-green ring appears almost instantly at the junction of peroxide and ethereal extract sharply contrasting with the fluid above which is colored violet by the reagent. Unfortunately this green color is very evanescent and soon gives place to a violet color, more or less dark, according to the amount of blood present. It is the green color, however, that is characteristic of blood.

The test as above described can evidently not be used in the presence of large quantities of bile pigment or of urobilin. In these cases the stool should be repeatedly extracted with alcohol ether. The test if done as above, with the residue, is trustworthy.

As regards the delicacy of the method, it is quite as sensitive as the guaiac—turpentine or the aloin tests and is inferior in this respect only to the benzidin and the spectroscopic methods. In contrast to the former of the last two methods, however, the reagent will keep indefinitely and it is more convenient than the latter in that great amounts of suspicious material are not required. While the method will hardly supplant the aloin and guaiac tests, it apparently deserves to be placed by their side for confirmative purposes.

CONTRIBUTION TO THE DIFFERENTIAL DIAGNOSIS OF EXUDATES AND TRANSUDATES.—Landolfi (*Riv. cit. di clin. med.*, 1905, No. 42).—Exudates may be readily distinguished from transudates as follows: If potassium iodide be administered, it will appear in the ascitic or other fluid in large quantities if the fluid be a transudate, as a trace only on the other hand is the latter be an exudate. Conversely, if the iodide be injected into the affected serous cavity, it will be rapidly excreted by the urine, etc., if the fluid be a transudate but not if it be an exudate.

Salicylic acid, antipyrin and pyramidon gave similar results, but did not prove as useful, for this purpose, as potassium iodide.

THERAPEUTICS.

IN CHARGE OF

WALTER BAUMGARTEN, M. D.

THE THERAPEUTIC VALUE OF ANTITHYREOIDIN IN THE TREATMENT OF EXOPHTHALMIC GOITRE.—Elsner and Wiseman (*N. Y. State Jl. of Med.*, June, 1906) draw conclusions, based on 12 cases of typical and a greater number of atypical exophthalmic goitre treated with antithyreoidin, which state very fairly what may be expected of the remedy. We therefore quote them.

3. We are positive that antithyreoidin is a remedy which can be used for the relief of the annoying and alarming symptoms of exophthalmic goiter in typical and atypical cases. The greatest improvement is found in the relief of the tachycardia, precordial distress, and tremor. This improvement is hastened by rest in bed and close attention to diet. *Rest in bed and diet alone, without the administration of antithyreoidin, will not lead to the same degree of cardiac comfort.*

4. Improvement of one or more of the symptoms of the disease is likely to follow within from three to seven days after the beginning of the use of the remedy. If there is no improvement of the symptoms after from three to four weeks of administration, the chances are against ultimate benefit from the prolonged use of the serum. In serious cases it will be necessary to continue the treatment during many months. In all cases after the disappearance of the subjective symptoms, it will be wise to administer unsalted butter and cream. To replace the phosphorus which is lost by the excessive excretion of phosphates in the urine, some nucleo-proteid is given—protulin was used in the cases reported. Finally

a liberal quantity of proteid is given in the form of eggs, meat, fish and cheese.

Alt reports most striking improvement even in very serious cases. With gain in weight (which ranged from 30 to 56 pounds) comes reduction in the pulse rate, disappearance of the tremor and of other nervous symptoms, and finally, in all cases, a diminution in the size of the thyroid. The improvement has so far (2 years) been permanent.

DIETARY CONTROL OF BASEDOW'S DISEASE.—Alt (*Muench. Med. Wochschr.*, June 12, 1906, p. 1145) has conducted experiments in the metabolism of patients afflicted with exophthalmic goitre, and found that the pathological changes in function consist of sodium chloride retention, diminution in tolerance for carbohydrates (as appears from the presence of sugar in the urine after relatively small quantities of carbohydrates), and a much exaggerated excretion of phosphoric acid. In addition to this a greatly increased nutritional value is required by these patients to meet the active katabolic changes, in some cases as much as 100 calories per kilo of weight.

On the basis of these observations Alt places these patients on a milk diet, in quantity not containing more than 4 g. of sodium chloride in the 24 hours. This small quantity of salt is continued indefinitely; meanwhile the salt retention is relieved and a greater tolerance for salt is gradually developed. Carbohydrates (salt free) are added to the diet in 3 or 4 days and gradually increased until the limit of tolerance (indicated by the appearance of sugar in the urine) is reached. The weight usually falls until sufficient caloric-values have been reached. This is usually accomplished after the tolerance for carbohydrates has been reached by the addition of fats,—antithyreoidin during periods varying from four to eight weeks at intervals of two or three weeks.

5. Cases without marked goiter, with slight exophthalmic, tremor, and the Graeffe symptom, have yielded most readily to the antithyreoidin treatment. The enlarged thyroid has become perceptibly small, but has not returned to the normal size.

6. Exophthalmos, in our experience, continues to be the most rebellious symptom, never yielding entirely to antithyreoidin treatment.

7. Nervous symptoms usually yield as the heart becomes slower. The many fears which take possession of these patients are also relieved at the same time.

8. The majority of our patients have increased in weight. Patients who have taken antithyreoidin during a long period feel when the serum is discontinued as if they had been robbed of a food to which they are entitled.

9. In no case have we had occasion to regret the trial of antithyreoidin. It has always proved itself harmless. It may be given during pregnancy without fear of injuring the mother or fœtus. Hypertrophied and dilated hearts offer no counter-indication to its administration.

PRINCIPLES OF FEEDING IN TYPHOID FEVER.—Kinnicutt (*Boston Med. and Surg. Jl.*, July 5, 1905) has compared on statistical grounds the mortality and frequency of relapse, hemorrhage, and perforation in cases of

typhoid fever nourished on liquid diet, and in cases nourished on a mixed soft and solid diet. The following is a summary of his statistics which have been gathered on the one hand from the Massachusetts General Hospital, the Presbyterian Hospital of New York, the Monsall Fever Hospital and the Kief Military Hospital, and on the other from the reports of the Johns Hopkins Hospital, the Presbyterian Hospital of New York the Massachusetts General Hospital, the New York Hospital, and the Presbyterian Hospital of Chicago:

LIBERAL DIET.

<i>Cases.</i>	<i>Relapse.</i>	<i>Haemorrhage.</i>	<i>Perforation.</i>	<i>Mortality.</i>
733	48-11.38%	35-4.77%	10-1.36%	60-9.47%
	Basis of 325 cases	*Basis of 733 cases	Basis of 733 cases	Basis of 633 cases

LIQUID DIET.

4,654	507-10.38%	411-8.83%	111-2.40%	491-10.55%
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The liberal diet includes milk in all forms, soups of all sorts, beef juice, gruels, eggs, scraped beef, minced lean meat, soft parts of oysters, crackers, toast, puddings, blanc mange wine jelly, apple sauce, macaroni. In the Kief Military Hospital a roll, one-half of a cutlet and some boiled meat forms part of the daily routine diet.

This study, Kinnicutt believes, does not justify the fears and the widely accepted teaching that solid food leads to more frequent intestinal accidents in typhoid fever than the liquid diet. His figures, indeed, strongly argue the reverse. They emphasize a growing impression that diet *per se* has little to do with relapses and intestinal complications. Kinnicutt pleads for a dietetic management "adapted to the individual case and based upon the recognition, (1) that while the digestive function in many cases of the disease is unquestionably seriously impaired, *frequently* the impairment is not a serious one; (2) that a clean tongue, a true appetite, hunger, should be accepted as guides for the cautious employment of a more generous diet; (3) that the individual rather than the disease is to be considered and treated

ORTHOPEDICS.

IN CHARGE OF

NATHANIEL ALLISON, M. D.

JOINT MANIFESTATIONS IN THE HEMOPHILIA.—Ryerson (*Jour. Amer. Med. Assn.*, June 23, 1906).—Fifty years ago, physicians clearly recognized the frequency of joint lesions in hemophiliacs, but were unable to agree on the pathology of these lesions. It was not until the convincing paper of Koenig was published, in 1892, that the profession at large awakened to the true cause of the arthritis. The resemblance of these joints to tuberculosis is so close that at times they have been treated by

eminent authorities as tuberculous lesions. It is probable that many cases go unrecognized, and in fact, in a case of effusion into the knee-joint, following a moderately severe trauma with no rise in temperature and no great pain, it may be impossible to make the correct diagnosis without aspiration of some of the fluid.

The author divides the affection into three stages. In the first stage there is simply the presence of free fluid blood in the joint. This is accompanied by moderate brownish or yellowish discoloration of the capsule and synovial surfaces. It is absorbed and joint function becomes normal. The second stage is where repeated hemorrhages have taken place in a single joint, and distinct pathologic changes have resulted. The capsule becomes thickened and succulent, and much darkened. The third stage is the stage of adhesions, which results in more or less complete ankylosis. The fluid in the joint is absorbed and only the thickening of the synovial surface and the ankylosis remains, with usually a marked flexion of the joint.

The treatment in the primary stage should be such as will promote the absorption of the effused blood, aspiration with a fine needle, the injection of adrenalin solution and a pressure bandage applied for five or six hours. In the later stages, when there is the tendency to flexion, traction should be applied to the joint. Ankylosis infection may be corrected by the Goldthwaite genuclast, or by forcible manual redressment. Any cutting operation should be shunned like the plague.

THE DIAGNOSTIC VALUE OF RADIOGRAPHY IN FRACTURES.—Don (*Scot. Med. & Surg. Jour.*, June, 1906).—The author states that there are means of overcoming most of the difficulties in radiography used for fracture diagnosis. The radiographer must know his osteology and be familiar with the principal surgical bony lesions, or, alternatively, the surgeon himself must direct the manipulations of the electrician to get the picture he desires. The secondary and adventitious rays must be cut off as far as possible by diaphragms of some material impervious to the X-ray. The current through the tube in the wrong direction, that is, from cathode to anode, must be choked by a valve-tube, or other contrivance of a similar nature. This is not necessary if a static machine is used. Fractures in or near joints are very difficult to reproduce well in radiograms and more than one plate may have to be taken. The muscles about the shoulder and hip joints in muscular men are sufficient to obscure almost completely a bony lesion, and to this is often added the overlapping of the bones themselves.

The paper is illustrated with diagrams, which show the proper position of the tube to obtain the best results.

TORTICOLLIS—WRY-NECK.—Tubby (*Brit. Med. Jour.*, June 16, 1906). There are two chief varieties, the true and the false. The true form is of two types, the fixed,—the wry-neck of childhood, or the congenital form,—and the reflex, the spasmodic and the acute forms. The author states that acute wry-neck is an acute rheumatism of the neck, which is amenable in most cases to medicinal treatment, but in a minority may be the beginning of the spasmodic form. The spasmodic form may be reflex, due to

irritation. The usual cases have enlarged glands, from carious teeth or other irritation. It disappears as soon as the cause of the spasm is removed. The fixed form is due primarily to a change in the sterno-mastoid, and then to secondary contraction in the trapezius and other muscles of the neck and deep fascia, and lastly there are distinct alterations in the shape of the cervical spine. The pathology shows that there is always a fibroid nature, the muscle-fibre being replaced by dense cicatricial tissue.

As to the asymmetry of the face, the author is of the opinion that it is due to the pressure on the carotid vessels which pressure allows less blood to go to the affected side. This may be proven by placing a delicate surface thermometer on the contracted side of the face where it is found that the temperature is less than on the uncontracted side. He also points out that there are three curves in the spine: one cervical, which is primary; second, a long compensatory curve in the dorsal region; and, third, a corresponding compensatory curve in the lumbar region. The treatment of this form is operative, and may be done in one of two ways: one, which is unsafe and unwise and unsatisfactory, viz.: subcutaneous tenotomy; and the other, which is perfectly safe and overcomes the deformity, that is, open operation and thorough division of the contracted muscle.

As to the spasmodic form of torticollis there is evidence accumulating to show that it is due to some form of cerebral lesion, probably due to sclerotic changes in the vessel. Many of these cases have some history of mental aberration in their family. They go through a large amount of treatment, all of the remedies proving of no value whatever. Up to the year 1888 the best form of treatment for these cases was the stretching or cutting of the spinal accessory nerve. To Professor Keen and Dr. Gardner, however, is due the credit jointly for devising a radical operation, which consists in cutting down on the posterior primary branches of the cervical nerve and removing a portion of them. By this operation you deprive the back part of the head of sensation, and also the skin of the neck, and you break the vicious reflex circle which runs through the sensory nerves. At the same time you cut out the motor supply to the posterior cervical muscles and so stop the vicious movements.

False torticollis is associated with spinal caries and follows cicatrices of burns and wounds in the neck. The neck is twisted in some cases in a way similar to that seen in true wry-neck.

GENITO-URINARY SURGERY.

IN CHARGE OF

H. McC. JOHNSON, M. D.

THE SURGICAL ASPECTS OF ANURIA.—Cumstor. (*Am. Journal Urology*, July, 1906).—The author classifies the condition giving rise to anuria into those resulting from reflex action, in which suppression of secretion is produced by irritation in some other organ, those in which there is some obstruction in the urinary canals, such as occurs in certain infectious processes, and those due to nephritis, renal calculi, and torsion or compression of the ureter. Cases of purely nervous anuria can be met with in which the renal glands are normal and in this class hysterical

anuria belongs. This form usually arises in neurotic individuals, or in diseases or anomalies of the female genito-urinary organs. The splanchnic nerve becomes irritated and from this arises a cramp-like contraction of the renal arteries, while the flow of blood to the kidney completely ceases. Hysterical cases do not give uremic symptoms if vomiting and diarrhea can be excluded.

The author considers the condition giving rise to anuria separately and cites cases illustrating each. Speaking of renal calculus, the most frequent cause of anuria, he says it should always be borne in mind that the diagnosis of these cases can ordinarily be made from the history, because these patients generally have been previously troubled by urinary symptoms, such as the passage of gravel, or a calculus. Colicky pains usually precede the passage of a stone, but every symptom may be lacking, the anuria suddenly developing without warning. The possibility of both ureters being obstructed should not be overlooked. In this case it is most important to determine the kidney last affected, which is usually the one that was the seat of the last pain, is the most tender on palpation, and over which the abdominal walls present the greatest reflex rigidity, and should be the one selected for operation.

Nephrotomy should be performed early. Israel advises not waiting longer than 48 hours. Legueu showed in 1891 that the number of cases of calculus anuria where operation was undertaken that recovered amounted to 66.6 per cent., while of those left alone only 25.5 per cent. recovered.

THE ROLE OF LUMBAR PUNCTURE IN THE TREATMENT OF NERVOUS UREMIA.—Carrieré (*Ann. des Mal. des Org. Urin.*, June 1, 1906; *Archives générales de médecine*, 12th Sept., 1905).—Since the day when Quincke described lumbar puncture our knowledge upon the cephalorachidian fluid has increased very much. From the first Quincke thought the evacuation of this fluid would be of some service in the treatment of nervous uremia. Of those who have followed his teaching, some have obtained good, and others unfavorable results. The author gives his experience with eight cases, in four of which the results were absolutely negative, while in the other four they were favorable. He reports in detail the four favorable cases, and arrives at the conclusion that lumbar puncture, associated with the usual medications for nervous uremia, gives encouraging results when the subjects are young, in cases where there is a question of acute nephritis, and where the uremia has existed only for a short time.

In discussing the mode of action of lumbar puncture in nervous uremia, he mentions three theories at present advanced for the explanation of nervous uremia. The first, that of Traube, attributes uremia to cerebral edema; the second holds that it is due to cerebral compression by the cephalorachidian fluid, of which the quantity is increased; the third attributes the uremia to the irritation of cerebral cortex by the hypertoxic blood, or the cephalorachidian fluid, equally overcharged with toxic principles.

The author has found cerebral edema to actually exist at autopsy in two cases out of four. From this and the fact that osmosis does occur

between the blood and the cephalorachidian fluid, he concludes that cerebral edema is theoretically very logical and perfectly admissible in a good number of cases of nervous uremia. Comparing the pressure of the cephalorachidian fluid in normal and uremic individuals, he finds that the tension in the latter is much increased in some cases. From microscopic examination of the brain tissue removed post-mortem in uremic cases the author finds marked changes in the tissues, such as fragmentation of the nuclei and vacuolization of the cells, etc.; from which he concludes that while the blood may be over-charged with toxic substances, yet the accidents of nervous uremia are largely due to the hypertoxia of the cephalorachidian fluid, and this hypertoxia he has demonstrated through animal injection.

The exact nature of these toxic agents is still very obscure. There are some cases, however, in which the exciting cause of the uremia is cerebral edema, others in which it seems to be due to compression by the cephalorachidian fluid, and others still in which the hypotoxicity of this liquid cannot be doubted. Therefore, lumbar puncture seems to be applicable in these cases, whatever the exciting cause.

CLINICAL NOTES.—Kreissl (*Am. Jour. Urology*, July, 1906).—Two very interesting cases are reported. The first is one of abdominal and vaginal ureteral fistula, closed by catheter left in the injured ureter for thirteen days. The fistula was discovered six days after a hysterectomy had been performed, when a strong ammoniacal odor upon the dressings led to investigation. Urine leaked freely through the laparotomy wound and vaginal vault for the following eight days. Cystoscopy showed a normal bladder and left ureteral os, but the right ureteral orifice wide open and motionless. A No. 7 French catheter was passed into the right ureter and seemed to meet with some obstruction about 4 inches up, which was easily overcome with slight pushing, the catheter passing up to the renal pelvis. Two hours after the catheter had been placed the dressings covering the fistula were dry and leakage through the vaginal vault had ceased. The catheter was left in situ for thirteen days and the renal pelvis irrigated three times daily with antiseptic solutions. The bladder was also antiseptically treated. The urine at first contained a low percentage of urea, a large quantity of pus and albumen, and was of low specific gravity, quantity 24 ounces. Temperature and pulse remained normal. No pain was complained of, and the patient suffered very little inconvenience from the retained catheter. On removal of the catheter the ureteral os was found working normally and the urine had returned to almost normal. This case is instructive for several reasons. It demonstrates again the value of the ureter catheter for therapeutic purposes on suitable occasions, as in this one where it returned to perfect function a damaged ureter and saved a kidney which otherwise, perhaps, would have to be removed to cure the urinary fistula. It further shows the fallacy of the statement that in transverse lesions of the ureter the os will be seen absolutely motionless, while in lateral injuries the orifice without emitting any urine will open and close, although not so complete and regular as under normal conditions.

The second case reported is one of primary tuberculosis of the bladder

and lower end of the ureter cured by local treatment. The patient, a robust girl, aged 18, gave the following history: Following a severe cold contracted during menstruation, frequent and painful urination set in. Rest in bed and internal medication failing to relieve, bladder irrigations were added, which made the condition decidedly worse, terminal tenesmus occurred, the urine became more turbid and had to be voided every 15 or 30 minutes. Cystoscopic examination showed a number of typical small sized tubercles in the trigone and a few in the corpus above the inter-ureteric ligament. The right ureteral orifice appeared normal the left was surrounded by an elevated, cone-shaped, infiltrated and congested area (close to the orifice a tuberculous ulcer was established); the rest of the bladder seemed healthy. On passing the first three inches of a catheter into the left ureter an almost creamy fluid containing much pus was obtained. Gradually passing the catheter higher up the urine became clearer, and about six inches from the orifice the urine obtained was transparent. Tubercle bacilli were found both in the urine from the bladder and the pus from the lower end of the ureter. This finding was confirmed by inoculation of a guinea pig. The treatment consisted of 5 per cent. iodoform guaiacol suspensions, alternating with bichloride solutions in the bladder and in the lower segment of the ureter. Under this treatment the subjective symptoms improved rapidly and the ulcers healed within a month, while it took the tubercles about two months longer to disappear. Simultaneously with the latter the tubercle bacilli disappeared from the urine, which became quite clear and has remained so.

GYNECOLOGY AND OBSTETRICS.

IN CHARGE OF

HUGO EHRENFEST, M. D.

DISTURBANCES OF VISION DURING LABOR.—Bauer (*Monatschr. f. Geb. & Gyn.*, Mai. 1906).—The writer records an interesting case of sudden blindness during childbirth which offers unusual difficulties for diagnosis. The patient was a rather healthy woman of 30 years. No noteworthy disturbance during this, her eighth pregnancy, with the exception of some headache accompanied by nausea during the last three weeks. Full term child is expelled after a few pains, when patient suddenly realizes that she cannot see. On the fifth day the total blindness passed into a hemianopsia. Gradual return of vision and by the end of four weeks practically no trace of hemianopsia left. The only anomalies which could be detected by means of the ophthalmoscope are a transient edema of the retina, congestion of the veins with some blanching of the right papilla. For nine days subsequent to labor the patient showed cerebral symptoms, her sensory most of the time being cloudy. During this time she ran a high fever. At first the urine contained a large amount of albumen, which, however, soon disappeared. In reviewing the literature on the subject the writer points out that in seven cases of this sort the amaurosis was ascribed to an eclamptic or uremic toxemia. In seven cases, recorded re-

cently, the possibility of an existing eclamptic condition without convulsions is taken into consideration. The writer is willing to accept this latter mode of explanation for such a sudden blindness. He explains the transition in this case of the complete blindness into a hemianopsia by a gradual improvement of the toxic paralysis which at first affected all tracts of the central optic nerve, later only those of the right hemisphere.

ETIOLOGY AND THERAPY OF ECLAMPSIA IN THE PUERPERAL STATE.—Liepmann (*Zentralbl. f. Gyn.*, 16 Juni, 1906).—The writer briefly sums up his views on eclampsia as follows: Eclampsia is an intoxication. The toxin originates in the placenta, most probably as the result of an insufficient synthesis of maternal albuminoid substances secreted by the syncytium. If the maternal organism is incapable of neutralizing these toxic albuminoids by the prompt production of antibodies, it becomes poisoned. The argument has been made against this theory that it does not seem to explain the cases where the first eclamptic convulsions occur after labor, i. e., after the expulsion of the placenta. This argument, in Liepmann's opinion, is not acceptable. Experiments and similar observations with bacterial infection have shown that the liver is capable of retaining a large amount of such toxins and later may not be able to neutralize them. They may then enter the maternal system and lead to convulsions subsequent to the expulsion of the ovum. These cases need a special form of treatment, which in the main is symptomatic, directed against the most prominent symptoms. The writer gives the following diagrammatic outline of the treatment of post-partum eclampsia considered according to the various dangers caused by convulsions in that state.

The eclamptic poisons injure: (1) The *Renal Parenchyma*, leading to a reduction of the total amount of urine, which contains albumen and casts. *Treatment*: Hypodermoclysis with venesection in cases of plethora, diuretics. (2) The *Heart*, producing a quick pulse with low tension. *Treatment*: Stimulants. Caffein, camphor oil. (3) The *Brain*, resulting in coma, superficial breathing, possibly with complete paralysis of the respiratory centre, edema of the lungs, convulsions. *Treatment*: Artificial respiration, which in some cases has to be kept up for days. Stimulation with cold water. Cold packs. Very small amount of narcotics, preferably chloral hydrate in 45 grain doses per rectum. Morphia only if patient is very restless, then in one-half grain doses.

The feasibility of such a therapy is illustrated by the detailed records of a few cases. Liepmann is convinced that this therapy with quick delivery in all cases in which the convulsions appear before labor is bound to reduce the present mortality of eclampsia.

HERNIA OF THE UTERINE ADNEXA, WITH A PERSONAL EXPERIENCE OF SEVEN CASES.—Carmichael (*Jour. of Obst. and Gyn. Brit. Emp.*, July, 1906).—Inguinal hernia in the female is associated with hernia of the uterine adnexa in a very large proportion of cases. This association may be expected in from 25 to 30 per cent. of all cases. Out of 23 cases operated upon by the author, the ovary or Fallopian tube, or both, were present in the hernial sac in seven cases. Of a total of 76 cases of inguinal hernia operated on in female children in the Edinburgh Royal Hospital,

30 had contents in the sac, and of these 24 comprised ovary or tube, or both. Although isolated cases are from time to time recorded as being of rare occurrence, one is forced to consider ovarian hernia as one of the most common, if not the most common as compared with hernia of any other abdominal viscus. Of the seven cases operated upon by the writer, three were bilateral. In young babies (under one year) according to the statistics compiled by Carmichael, the uterine adnexa may be looked for in more than 60 per cent. of all inguinal hernias. The degree of hernia varies from that of a complete descent of ovary and tube with the broad ligament, to any partial protrusion of one or both of these organs. The younger the child the more common are the complete hernias. When the adnexa are situated in the canal of Nuck they are not as easily replaced, like a coil of intestine, for, although mobile, they are to a certain extent fixed. As a rule the tube seems to lie lower down in the sac than the ovary. That the ovary continues to functionate in its abnormal position is shown by many records in literature; even ectopic pregnancy in a hernial sac has been described by several authorities. Pathologic changes in herniated ovaries are a frequent occurrence. Acute and chronic inflammation is most common. Torsion is not infrequent. Cystic degeneration and malignant changes in later life are recorded. Several authorities report the association of hernia of the uterine appendages with maldevelopment or non-development of them, or of the other genital organs.

Most of the recorded cases of hernia of ovary and tube into the *femoral* canal have occurred in women in adult life.

PEDIATRICS.

IN CHARGE OF

ALFRED FRIEDLANDER, M. D.

THE SCORBUTIFORM SYNDROME IN INFANTS.—Bouchot (*These de Paris*, 1906; *Rev. Mens. de Mal. de l'Enf.*) says that the characteristic symptoms of scurvy are pain in and weakness of the extremities, lesions of the gums, profound anæmia, subperiosteal hematoma, and ecchymoses of the skin and mucous membranes. There are atypical cases in which one single symptom would appear to dominate the picture. In at least 25 per cent. of the cases the affection presents as a painful pseudo-paralysis of one or of several extremities. There are mild cases where the symptoms appear in stages and careful examination is necessary for their elucidation and prompt treatment. The diagnosis, which is easy in the typical cases, is often very difficult in the "forme fruste," and the condition is not infrequently overlooked. One should always think of the possibility of scurvy in the presence of "disconcerting" symptoms, in artificially fed babies of the ages of two months to two years.

The study of the conditions underlying the production of scurvy leads one to the belief that the exciting cause of the disease is the presence in the aliment of some scorbutinogenic poison, whose nature is as yet ill-defined. The aliment is the more apt to produce scurvy when the manipulations through which it has passed have been numerous or prolonged.

PEDIATRICS.

It appears thus (and the examination of the blood tends to confirm the view) that scurvy is to be regarded as a toxic infection of alimentary origin, occurring in subjects already predisposed by gastro-intestinal fermentation. It is very probable that there is some disturbance of the hepatic function, in addition, with perhaps some modification of the blood state, and a predisposition to hemorrhagic disorders.

ANEMIA INFANTUM PSEUDO-LEUCAEMICA.—Jaksch.—As a result of their careful studies of a series of cases, and of the literature, Fleisch and Schlossberger (*Archiv. f. Kinderheilk.*, Vol. 43, p. 294) conclude that this disease is a distinct entity. They concur in the opinion and position taken by Jaksch, viz., that it is a disease of early life running a clinical course like that of leukaemia, though without the post mortem findings of this condition. In addition to large splenic and hepatic tumor, there is marked adenopathy, together with oligocythemia, oligochromemia and in all cases marked leucocytosis (1:10 to 1:17).

It is probable that this disease is to be classed as being midway between a simple and a progressive pernicious anemia. They do not feel that the name ordinarily given is necessarily correct, nor do they consider this to be of prime importance. Inasmuch as the pathogenesis of the condition is not understood it would probably be difficult to find a more suitable name.

The main thing is to get a correct conception of the disease. All cases should be classed in this rubric, in which, without regard to etiology, the foregoing clinical and hematological pictures develop. It cannot be denied that this may be a toxic process. Why the great proportion of cases of rickets, tuberculosis and lues, should be followed merely by simple anemia, while in a small proportion of the cases this form of anemia ensues, it is not possible to explain at the present time.

The Wightman Lecture of the Society for the Study of Disease in Children was delivered this year by Broca of Paris. He chose as his subject Chronic Appendicitis, and the Early Diagnosis and Treatment of Acute Appendicitis in Children (*Brit. Jl. of Dis. of Children*, June 1906). Broca believes that appendicitis is but the localization of an entero-colitis previously more extended. All cases of gastro-enteritis do not of course lead to appendicitis, as is evidenced by the rarity of appendicitis in infants and very young children, among whom gastro-enteritis is of course very common. The special form of muco-membranous enteritis is one which predisposes greatly to appendicitis, and in such cases it often happens that appendectomy does not give relief from the symptoms because it only removes one source of irritation, the enteritis remaining. The necessity for careful medical treatment in these cases even after operation is thus apparent.

Appendicitis often develops as a truly chronic process. In many cases the symptoms are vague and are those of a chronic dyspepsia. This dyspepsia is apt to be marked by gastro-intestinal atony, difficult digestion, flatulence and obstinate constipation alternating with attacks of diarrhea. In some cases habitual vomiting in the morning, without fever, is a symptom. There is a coated tongue, offensive breath, subicteric complexion, and habitual nausea. Attacks of gastralgia are common.

On examination, under careful palpation, the cecum will be found to be thickened, and at times the enlarged appendix may be felt. There is often, in these cases, slight tenderness on pressure over McBurney's point. It is, however, not to be forgotten that these symptoms may be those of beginning tubercular disease of the cecum, and at times a definite diagnosis can only be made by laparotomy.

In this class of cases, the infectious element does not play a very important role. In another class the cases run a more acute course, with fever, vomiting, coated tongue, and colic, principally on the right side. These cases may simulate the vomiting with acetomemia of childhood. Operation in these cases usually shows rather intense appendicular and periappendicular inflammation. With the ordinary folliculitis associated with an old sclerosis we find omental adhesions. These cases ought to be operated, usually in the interval, because of the danger that in some one of the acute attacks there may be severe infection, even peritonitis. It is impossible to so regulate the life of children especially of boys, that attacks may be absolutely avoided, even though it were considered possible by any regulation of life to do this. Therefore it is safer to operate all of these cases. Broca is inclined to the belief that there is, in reality, no medical treatment of appendicitis.

The rest of the lecture is taken up with a discussion of the question of the time of operation in acute cases. Broca's views are thus summed up: "Operate immediately if you are called within twenty-four hours following the onset of the acute attack. But when you are called afterwards, you must act according to the indication given by each individual case, and then with the idea of calming as much as possible the attack, before operation."

NEUROLOGY.

IN CHARGE OF

SIDNEY I. SCHWAB, M. D.

MULTIPLE SCLEROSIS, A CONTRIBUTION TO ITS CLINICAL COURSE AND ITS PATHOLOGICAL ANATOMY.—Taylor (*Jl. of Nerv. and Mental Dis.*, June, 1906).—Taylor calls attention to the fact that in America little attention has been paid to the subject of multiple sclerosis in spite of the importance that has been given to it on the continent; there it is regarded as one of the most important organic diseases of the nervous system. A list of the contributions by American writers, with the autopsy protocols, is given and the meager number is compared with the large number of cases which were reported by Muller in his latest monograph on the subject. Muller was enabled to collect 1,148 references. Eighty references have been collected since Muller's paper in 1904 and 1905. Twelve cases are given in great detail by the writer and among them there are six autopsies with careful microscopic reports. This in itself is sufficient material to merit attention and the conclusions of the author are worthy of serious consideration. Taylor arranges his conclusions under various heads, as follows: *Frequency*. In spite of the fact that multiple sclerosis has been considered a rare disease in this country, Taylor is of the opinion

that it is by far more frequent than is commonly supposed; he believes that it is one of the most common of the organic nervous diseases. If all cases in which there is a suspicion of multiple sclerosis are examined frequently, and if in such cases a post-mortem examination could be obtained, it is probable that a large majority of them would be found to show changes characteristic of multiple sclerosis. In this way it would appear that the disease is about as frequent in this country as it is in Europe. *Diagnosis and Prognosis.* The diagnosis is often impossible to make with assurance during life even in advanced stages of the disease. The diagnosis was at one time thought unwarranted unless cardinal symptoms were present. This has given place to the emphasis upon certain signs which from their occurrence are to be regarded as unexplainable upon any other grounds than that of multiple sclerosis. For example, the author lays great stress on the occurrence of unexplained spasticity and the exaggeration of the deep reflexes. If these two conditions are present in addition to the ocular symptoms characteristic of the disease, the diagnosis seems very probable. Although the diagnosis may not be possible it may often be made with probability and further detailed observation of the case may bring to light symptoms which will make the diagnosis certain. *Pathological Anatomy.* The etiology of the disease remains obscure. The hypothesis that there is a selective poison acting through the blood vessels remains undemonstrated. The process which results in the changes found in multiple sclerosis does not seem to be related to inflammation in the ordinary sense, certainly not with that found in myelitis. It is probable that the process, whatever it is, exhausts itself after spreading a certain distance from the central focus. Outside of the role of the blood vessels, the overgrowth of the neuroglia is a most vital point. The evidence seems to be growing against the assumption that there is a primary overgrowth of neuroglia. That the degeneration which is sometimes found is a direct result of the neuroglial overgrowth seems at least unlikely. The assumption that there is present in the sclerotic patches a regeneration of nerve fibres to explain the persistence of the axis cylinders is not at present necessary, especially in view of the well known fact that central fibres do not as a rule show any marked tendency to regenerate. The general conclusions to which Taylor wishes to draw attention are as follows:

The rarity of the disease in this country has been overestimated. A more careful examination of atypical cases and a more open mind in diagnosis is desirable.

The importance of observing and properly estimating minor symptoms of the disease, particularly unexplained spasticity and ocular disorders, must be emphasized.

The etiology remains obscure. The pathological anatomy is still a hopeful field for study. Present evidence points towards a primary destruction of the myeline with either a secondary or coincident proliferation of the neuroglia.

TWO CASES OF SUCCESSFULLY OPERATED SPINAL CORD TUMORS.—Oppenheim, Borchardt (*Berl. Klin. Woch.*, 1906, No. 26).—Oppenheim describes two cases of spinal cord tumor in which the operation for their

removal was successful, and wishes to illustrate the progress which diagnosis and localization have shown in the last little while. The operations themselves are described by the surgeon. The first case offers nothing unusual except always the surprising facility which Oppenheim shows in the interpretation of symptoms. In the second case the tumor was situated strictly in the middle line, contrary to the usual situation in cord tumors, and thus produced symptoms which might have been interpreted as a part of a system disease in the cord. Oppenheim has now a series of eight cases, in four of which the operation has been successful, and in all of which the tumor was found to be correctly diagnosed and localized. He suggests further, that it is extremely probable that some cases which have been diagnosed as myelitis, multiple sclerosis system disease of one sort or the other, might very well be cases of extrameningeal tumor which are favorable objects for surgical intervention. This idea should certainly always be considered in the question of differential diagnosis.

A CASE OF DIFFUSE ENCEPHALITIS OF THE PONS ENDING IN RECOVERY.—Bregman (*Deutsche Zeitschr. für. Nervenheilk.*, 5 and 6, 1906).—Oppenheim has called attention to the relative favorable prognosis of the non-suppurative form of encephalitis. The author of this paper describes a case of diffuse encephalitis of the pons region which belongs to the category of cases that Oppenheim refers to. It is important to recognize such cases clinically if possible in order to be in a position to give the prognosis that belongs to it. The case is as follows: Woman, 32 years old, presented the following symptoms: Parasthesia of the right extremities. Hyperesthesia of the right side of the body. Paralysis of the left abducens. Headache, vertigo, vomiting. Occipital pain in passive movements of the head. Divergent strabismus in right eye. Diplopia. Right pupil wider than the left, reaction normal. Paralysis of the left facial of the peripheral type. Paralysis of the left pterygoid. Anesthesia of the right side of the face. Right sided paresis. There was a steady improvement of these symptoms after two months. When the patient left the hospital three months after the appearance of the symptoms the weakness of the left abducens, slight paresis in right leg, ataxia right extremities and slight hyperesthesia of the right side of the face remained. An analysis of these symptoms does not leave any doubt as to their localization. The nature of the lesions is probably that form of encephalitis in which the purulent process is absent so that no permanent destruction of tissue remains. The etiological factors in this case are obscure unless the combination of psychical and physical trauma present in the case be taken into account.

CLINICAL-ANATOMICAL CONTRIBUTION TO THE KNOWLEDGE OF MYASTHENIC PARALYSIS.—Osann (*Monat. Psychiatrie und Neurologie.*, No. 6, 1906).—This is a further case of myasthenia gravis with autopsy to be added to the already considerable post-mortem material of this disease. The case clinically offers nothing of unusual interest with the exception of the rapidity of its course. The disease in this instance lasted just nine months. The myasthenic reaction was well marked. The examination of the nervous system microscopically showed an absolutely normal condition. Sections from the muscles showed a few small foci of lymphocytes.

There are thirty-four cases of post-mortem protocols of this disease in which the most significant finding, that of infiltration of the muscles with lymphocytes, was found in only three or four cases. Osann reviews all the literature and includes his own result in his final consideration of the pathology. He inclines to the view that the intoxication theory forms the most reasonable basis to explain the symptomatology of the disease. The further suggestion is added that the small foci of cell infiltrated muscle found in this case may be the transition stage between that and the condition found in the muscles by Hun, Link, Goldflam and Weigert.

OPHTHALMOLOGY.

IN CHARGE OF

JOHN GREEN, JR., M. D.

TWO NEW OPERATIONS FOR TRICHIASIS.—Butler (*The Ophthalmoscope*, July, 1906).—Butler has encountered many cases of trichiasis in which there is no marked entropion, but only a localized tuft of lashes growing internally to the normal row. For the tufts placed in the centre of the upper lid the following procedure has been found entirely efficient: the upper lid is seized by Grady's forceps and everted. The tuft of lashes is then excised by two curved incisions which meet deep in the tarsus. A wedge-shaped fusiform piece of tissue is thus removed, which includes the misplaced lashes and their root follicles, great care being taken that no root follicles are left in the inner lip of the wound. The patient's lower lip is everted, firmly seized between the thumb and fingers, and a fusiform piece of the mucous membrane rapidly cut with a pair of sharp scissors curved on the flat. The graft is adjusted and firmly held in position till the blood has coagulated under it. Well greased oil-silk is used as the dressing.

When the misplaced lashes are situated at either canthus, Butler performs a modified Spencer-Watson operation as follows: The outer (or inner) part of the lid is seized with Grady's forceps, and split for from 8-10 mm. from the canthus inwards. The very greatest care must be taken that the split is internal to all the falsely placed cilia, a lens being used to detect any stumps. The split is deepened for $2\frac{1}{2}$ mm. and then the lower flap is separated with a pair of scissors. The skin flap is truncated, and the lash bearing flap sutured into the space left by the skin flap. The triangular space is filled with a piece of mucous membrane cut from the lip. Dressing the same as in the first operation.

THE KNIFE NEEDLE OPERATION FOR SECONDARY CAPSULAR CATARACT.—Jackson (*Arch. of Ophthalmol.*, March-May, 1906).—Jackson states that, whereas, in practice there are ten failures of the needle operation to but one of extraction, the former operation is all but disregarded in text books.

The following points seem to Jackson essential to the proper performance of the needle operation: (1) To see the operation there must be a strong oblique illumination of the eye, and the surgeon must possess

powerful accommodation or use spectacles with strong convex lenses, or the binocular magnifier. The reflex from the cornea can with certainty be avoided only by depending upon focal illumination in a dark room. In order properly to place the point of the knife for the incision and to determine the exact situation of thickened bands of capsule and synechiae it is necessary to make use of a binocular magnifier, planned to give a working distance of six inches, while the eye is seen through three-inch lenses. (2) The knife needle must be perfectly sharp and its shank must exactly fill the external opening to prevent escape of aqueous. To avoid tearing the capsule, force must be exerted exactly in the direction of the cutting edge. Escape of aqueous adds to the difficulty and uncertainty of the operation. (3) The knife needle must be entered through the vascular tissue of the corneal limbus, and not through the clear cornea. Entrance through the limbus gives practical immunity from infection by going through a vascular tissue. The incision at the limbus doubles the length of leverage and more than doubles the length of the incision that may be obtained by a sweep of the needle. The objections which have been urged to entering the eye through the limbus, namely, nearness of the puncture to the ciliary body, greater difficulty in cutting a membrane obliquely, and greater difficulty in exactly placing the point of puncture are shown to be largely imaginative. (4) Two incisions are necessary, preferably T-shaped or V-shaped. The incision which is nearer to the point of entrance through the limbus should be made first because it is more difficult. Great care must be taken to see that the second incision passes fairly into the first and does not leave a bridge of membrane between.

THE USE OF ADRENALIN IN SPRING CATARRH.—Grimsdale (*The Ophthalmoscope*, July, 1906).—Grimsdale agrees with Darier that there is actually but one disease in which adrenalin is really specific and that is spring catarrh. As is well known, the treatment of this condition, apart from the use of adrenalin, is most unsatisfactory; even the slightest forms linger on for years, the vegetations being scraped, cauterized and otherwise maltreated until the conjunctiva is left permanently scarred, when at last the disease ends, either yielding to the energetic measures adopted, or coming to a natural conclusion. Perret (*La Clin. Ophthalmologique*, January 10, 1901), was the first to call attention to the therapeutic action of adrenalin in this disease.

Grimsdale relates two cases as follows: In a child of seven, the upper cul-de-sac of the conjunctiva and the surface of the tarsal cartilage of the upper lid were thickly covered by fine papillary granulations. There were no large sago grains and the cornea was absolutely normal. The fellow eye was unaffected. Astringents and protargol proving entirely ineffective, the granulations were snipped off, which procedure was followed by temporary improvement. The granulations, however, reappeared after a few weeks. Adrenalin chloride 1-2000 was then ordered to be instilled three times daily. Continuation of this treatment for seven months resulted in complete and permanent cure.

That the ocular variety of the disease is equally amenable to this treatment is indicated by the following case: A male, aged 24, had for ten

years suffered from the presence of very large pericorneal masses, in appearance absolutely typical of spring catarrh. The disease was represented in the palpebral conjunctiva by the waxy infiltration, without any prominent papillae. A course of adrenalin chloride drops continued over a period of ten months resulted in the complete disappearance of the pericorneal masses and the restoration of the palpebral mucous membrane to a normal appearance.

LARYNGOLOGY AND OTOTOLOGY.

IN CHARGE OF

WILLIAM E. SAUER, M. D.

A NEW ROUTE FOR OPERATING ON MALIGNANT NASAL TUMORS.—Denker (*Munch. Med. Wochens.*, Jahrgang 53, No. 20).—After briefly discussing the various methods of removing malignant growths from the nasal passages, the author describes a plan of operation which gives free access to the nasal passages without any facial deformity. His method consists of making an extensive incision along the junction of the upper lip with the alveolus. The soft parts are dissected in the same manner as in the radical operation on the maxillary antrum. The antrum is then opened and enough of the antro-nasal wall is removed to expose the new growth. After the removal of the growth the cheek is allowed to drop into place and the incision is closed. The after treatment is carried on through the nose. Three cases are described in which this plan was followed. In two cases malignant growths were removed. In the third case a fibroma, which probably originated in the pterygopalatin fissure, was partially removed. In this case the growth could not be removed by this method. In cases having their origin in the pterygopalatin fissure a temporary resection of the superior maxilla is recommended.

A MODIFICATION OF THE INCISION FOR EXPOSING THE MASTOID BONE.—Hammond (*Medical Record*, June 2, 1906).—The incision is triangular instead of being straight or semi-circular, as in the usual method, beginning about one-half inch back of the superior post-auricular attachment, extending through all the tissues obliquely backward and downward along the hairy margin to a point just below the middle of the posterior border. From this point the incision is again carried through all the soft tissues forward and downward to the posterior border of the digastric fossa. By this incision all the post-auricular vessels and nerves are avoided, except possibly some of the minute auricular branches of the occipital, and even they may be avoided if the lower incision of the triangle does not have to be extended too obliquely downward. This method furnishes a roomy field for dealing directly with the bone. Drainage from the bony cavity will be perfect. The lateral sinus can be explored through this incision without extending it backward and the scarring will be less conspicuous because of its proximity to the hairy margin.

ON THE TREATMENT OF SUPPURATIVE MIDDLE EAR AFFECTIONS BY ARTIFICIALLY INDUCED HYPEREMIA.—Fleischmann (*Monats. fuer Ohren-*

heilk., Jahrgang XL, Heft V).—On reviewing the reported results of Bier's method of induced hyperemia in suppurations of the middle ear the author finds that there is much difference of opinion as to its value. In order to determine its merits he applied the bandage in twenty-five cases, nine of which were cases of acute suppuration of the middle ear without complications; twelve acute suppuration with mastoiditis; two chronic suppuration of the middle ear and two peri-chondritis. The histories of these cases are given in detail. Of the nine uncomplicated cases, the discharge ceased in from ten to twenty-three days. The other three showed no improvement but responded promptly when the usual treatment was employed. These results do not show an improvement over other methods. Of the twelve mastoid cases, eight showed only a slight tenderness on pressure and headache at the beginning. Of these eight cases, four recovered in from seven to eighteen days, while four were operated upon, having shown no improvement. In one of the cases the acute symptoms subsided but the necrotic process in the bone developed at a rapid rate, greatly obscuring the gravity of the case. In the chronic cases, which were of mild form, no result was obtained. No improvement was noted in the cases of peri-chondritis. Fleischmann states further that inasmuch as not all cases of acute mastoiditis can be cured by this method and that it makes a latent form out of a manifest one with a destructive process still active, this method becomes a very dangerous one, as the proper moment for operating may pass and evil results follow.

WHAT CASES OF CHRONIC PURULENT OTITIS REQUIRE THE RADICAL OPERATION.—Knapp (*Archives of Otolaryngology*, Vol. XXXV, No. 2) believes that the views on this operation are tending to greater conservatism. He quotes Balance as being the only one who believes that all cases of chronic purulent discharge from the ear should be treated by the complete operation. Gruenert states that the greater half of the cases where the excision of the ossicles was indicated were healed by this operation. The author expresses his views in the following conclusions:

The operation is not indicated when only the tympanum and especially its mucous lining are involved, because intra-cranial complications are not likely to ensue and the operation usually accomplishes nothing.

The operation is urgent when the symptoms of headache, nausea and vertigo are associated with, and in relation to chronic purulent otitis, where the bone is found affected or cholestatoma is present and these symptoms are not promptly relieved by a minor operation.

The operation is indicated when the signs of the bone involvement continues after conservative treatment has been followed for a certain length of time and the odor of the discharge persists. The operation is not necessarily urgent in these cases as good drainage is present. The question of operation then depends on the patient's wishes and the condition of the hearing in the other ear.

ON THE NASAL TREATMENT OF EPIPHORA.—Meyer (*Berlin. Klin. Wochen.*, No. 23, 1906).—According to Meyer there are two ways in which conditions in the nose may affect the lachrymal apparatus. First through reflexes originating in the nose, which result in an increase of the

secretions; second, conditions which mechanically obstruct the lachrymal canal, the latter being the most important. The canal may be obstructed by hypertrophies of the inferior turbinate, or through crust formations, as in ozena, or through inflammatory processes at the nasal opening of the canal. Among other causes are, indirectly, deviations of the septum, nasal polypi, etc. The author has found as a frequent cause of epiphora a peculiar form of the inferior turbinate. In these cases the inferior border of the turbinate was turned outward and upward, lying against the nasal wall at the insertion of the turbinate. As the opening of the lachrymal canal is just beneath the insertion of the turbinate, about its middle, only the slightest swelling of the turbinate will close the opening. In dealing with such cases the author removes a portion of the turbinate, if the nasal passages are narrow; if they are normal, or atrophic, he fractures the inferior turbinate at its insertion by grasping it with a suitable forcep and turning it upward and inward. The turbinate is then held in proper position by gauze tampons. In the six cases operated upon the epiphora disappeared in from eight to fourteen days.

A CONTRIBUTION TO THE STUDY OF THE MODE OF INFECTION IN RHINOLOGIC BRAIN COMPLICATIONS.—Hajeck (*Arch. of Laryng. and Otol.*, Band 18, Heft 2).—A case of fatal meningitis following a chronic suppuration of the ethmoid is reported by Hajeck in which it was found on microscopic examination that the infection took place through the venous anastomosis between the dura and mucous membrane of the ethmoid cells. The bone was found to be intact. The usual mode of infection in these cases is by continuity of surface, especially necrosis of the bone itself.

BREWER'S YEAST IN PHLEGMONOUS TONSILITIS.—Melzi (*Gazzetta degli Ospedali*, Milan., *Rev. Jour. Am. Med. Assn.*, July 14, 1906).—Melzi reports a number of cases of suppurating peritonsillitis aborted by administration of brewer's yeast 8 to 20 gm. in the twenty-four hours. It was taken in sweetened milk in three doses and rapidly cured the incipient cases and improved all.

MEDICAL LAW AND MEDICAL JURISPRUDENCE.

IN CHARGE OF

IRVIN V. BARTH, LL. B.

PHYSICIANS TESTIFYING FROM OBSERVATION—PRIVILEGED COMMUNICATION.—*Smoot vs. Kansas City*, (Supreme Court of Missouri, 1906), 92 S. W. 363.—Suit for damages in the sum of \$25,000 for personal injuries sustained by plaintiff on account of an alleged defective sidewalk maintained by the defendant City.

A physician in the employ of the City was introduced by the defendant and asked the following question: "Q. I will ask you, doctor, if you saw the plaintiff spit any blood while on the sidewalk, or in the street before getting into the ambulance on Brook street?" The trial court excluded the answer to this question, and the Supreme Court in pass-

ing upon the alleged error held: "It is sufficient to say upon this proposition, that upon the retrial of the cause if it appears that the relation of physician and patient had been established and that the plaintiff had submitted himself for examination by Dr. Monahan, that then any information acquired by observation after that time would be incompetent. But, on the other hand, if prior to the establishment of this relationship, the doctor observed the patient and acquired information from such observation, we know of no rule of evidence that would make such information privileged."

NOTE—Section 4659 R. S. Mo. 1899 governing this matter of privileged communication with reference to physicians and surgeons reads as follows: "The following persons shall be incompetent to testify * * * ; fifth, a physician or surgeon, concerning any information which he may have acquired from any patient while attending him in a professional character, and which information was necessary to enable him to prescribe for such patient as a physician, or do any act for him as a surgeon."

One of the earliest cases and perhaps the leading case in Missouri which established the doctrine that the term "information" in the statute was not to be confined to oral communications merely is that of *Gartside vs. the Conn. Mutual Life Ins. Co.* (1882) 76 Mo. 446. The court there said:

"The construction contended for by defendant's counsel, that by the statute a physician is forbidden to disclose only such information as may have been communicated to him orally by his patient, would, in our opinion, nullify the law. To hold that, while under the statute a physician would be forbidden from disclosing a statement made to him by his patient that he was suffering from syphilis; and to allow him to state as the result of his observations and examination of the patient that he was diseased with syphilis would be to make the statute inconsistent with itself. It is doubtless true that a physician learns more of the condition of a patient from his own diagnosis of the case than from what is communicated by the words of the patient; and to say that while the mouth of a physician is sealed as to the information acquired orally from his patient, it is opened wide as to information acquired from a source upon which he must rely, viz: his own diagnosis of the case, would be to restrict the operation of the statute to narrower limits than was ever intended by the legislature and eventually to overthrow it."

It was in that case likewise announced that this doctrine of privilege may be invoked only after the relationship of physician and patient may have been actually established. The principle involved is simple, yet situations have arisen and will continue to arise wherein the existence of the relationship and the application of the principle may not be so easily determined. In the case of *Weitz vs. The Mound City Railway Co.* (1893) 53 Mo. Ap. 39, which was a suit for personal injuries sustained by plaintiff while a passenger on defendant's road, it appeared that defendant had sent a physician to examine the plaintiff; that the physician did so examine her, prescribed for her and thereafter at the trial was called upon by the defendant to testify. It was objected that the character of the testimony was necessarily privileged under the statute. The court held

that in view of the fact that it did not appear that the patient was advised that the physician came to examine her in the interest of the defendant, and not in her own, the relationship of physician and patient within the meaning of the statute was established and the physician was incompetent to testify.

It is further true that in order to invoke this privilege the facts which the physician may have learned from the patient concerning the disease or condition must have been such as were necessary to enable the physician to treat the patient. And it was held in the recent case of *State vs. Kennedy* (1903) 177 Mo. 98, that it is for the physician to determine for himself whether the information acquired by him from the patient was necessary to enable him to prescribe for such patient. And in the absence of some showing to the contrary, the presumption will be indulged that such information was necessary for that purpose; otherwise, as the court said, the physician "would not desire it." "To rule otherwise," it was held, "would be to usurp the prerogative of a physician, learned in his profession, which we have no inclination or right to do. We, of course, do not mean to say that we will not pass upon questions which are apparent to the ordinary observer, and to one not learned in the sciences of medicine and surgery which have nothing whatever to do with the case under consideration, and hold them not privileged."

Finally, it is clear that the sole aim of the statute is the protection of the patient. The distinction is made and adhered to that where the evidence of the attending physician is offered by the patient or his representatives, it is competent and admissible; but where it is offered by the opposite party, the physician cannot testify against the objection of the patient or his representatives. And, further, while the statute thus construed gives the patient the privilege of suppressing information it was not intended to operate in its absolute suppression. Hence, it has been held that the patient may waive the privilege and permit the physician to disclose such information. And it constitutes a waiver of such privilege on the part of the patient when he calls a physician to give evidence of information acquired in a professional character. But the ban of incompetency is placed upon certain witnesses only, and it is held that the patient who calls his physician to testify does not thereby waive his right to object to other physicians who have treated him from testifying on the same subject.

SOLICITATION OF PATIENTS THROUGH AGENTS, REGULATED BY STATE.—*Thompson vs. Von Lear* (Supreme Court of Arkansas, 1906), 92 S. W. 772.—In 1903 the Legislature of the State of Arkansas passed an act forbidding physicians and surgeons engaged in the practice of medicine to solicit patients by paid agents. It was urged that such a law was unconstitutional as being an unwarranted interference with the rights of physicians. But the court held that "under its police power the state has the right to prohibit things that are hurtful to the comfort, safety and welfare of society. It is now well settled that in the exercise of this power the state may regulate the practice of medicine and surgery."

Continuing, the court said: "Counsel for plaintiff quotes Oliver Wen-

dell Holmes as saying that, 'if the whole materia medica was sunk to the bottom of the sea, it would be all the better for mankind and all the worse for the fishes.' We do not dispute that statement, for there may be some truth in it, and it is possible that the legislature had something of the kind in mind when it passed this act. It may have thought that people are too much inclined to imagine themselves in ill-health, too prone to consult doctors, and take medicine anyway, without being urged to do so by hired agents."

NOTE—In Missouri the power of the state to "regulate the practice of medicine and surgery" was affirmed in the case of *State vs. Davis* (1906), 92 S. W. 484, which was the subject of our review in Volume 13, Number 7, pages 624-625, July issue of this publication.

PRACTICING AS A CORPORATION—LIABILITY OF STOCKHOLDERS.—*Mandeville vs. Coutright* (Circuit Court of Appeals, Dec. 28, 1905, 142 Federal Reporter 97.—Defendants were stockholders in a company incorporated in New Jersey and engaged in the practice of dentistry as a corporation in the State of Pennsylvania.

Plaintiff submitted to an operation by an unlicensed employe who performed the work so negligently as to fracture her jawbone and cause her serious injury. The court held that the company had no charter right to carry on the practice of dentistry and the defendants were liable as partners for the injury sustained.

"We agree," said the court, "that its charter did not authorize the Alba Dentists Company to practice dentistry in Pennsylvania, and that by the law of Pennsylvania the Company was forbidden to practice dentistry in the latter state. * * * In the case of *Com. ex rel Attorney General vs. Alba Dentists Company*, it was held that the Alba Dentists Company (*id est*, the very Company with which we are concerned) could not lawfully practice dentistry in Pennsylvania, and judgment of ouster was entered against the corporation."

NOTE—The right of individuals to incorporate in the State of Missouri for the purpose of engaging in the practice of medicine and surgery and dentistry is just now the subject of controversy in "quo warranto" proceedings, instituted to test this right, in the cases of *State ex inf. Sager vs. W. A. Lewin, et al.* and *State ex inf. Sager vs. Tarr, et al.*, pending in the Circuit Court of the City of St. Louis, Room No. 2, before Hon. Daniel G. Taylor, Judge.

SOCIETY PROCEEDINGS.

ST. LOUIS SURGICAL SOCIETY.

Meeting of April 18, 1906.

Dr. Walter B. Dorsett presented specimens of hypernephroma.

PRIMARY RETROPERITONEAL SARCOMA.

Dr. John C. Munro read a paper with this title (see page 633.)

DISCUSSION.

Dr. Frank A. Glasgow said his experience was limited to one case which he had reported under the title "The Spleen as a Factor in Gynecology." The patient was a young woman from whom he had removed the tubes and ovaries. Afterwards a tumor commenced to grow in the neighborhood of the spleen. As it continued to increase in size he opened the abdomen and found a tumor full of blood cysts, a sarcoma filling the whole abdomen. It could not be removed and it was impossible to tell where it originated.

Dr. Tupper was much impressed with the great paucity of symptoms leading to a diagnosis, and our inability to relieve the patient in the great majority of cases when the trouble becomes sufficiently apparent to enable us to make a diagnosis. This suggested to him a matter hinted at by the essayist, that is the chance of affording relief by the use of Coley's toxins. His observations in cases of sarcoma located elsewhere in the body encouraged him to continue the use of this method in selected cases, the small cell variety, and the experience of others seemed to prove this treatment has some effectiveness. At present he had under observation three cases, all treated over three years ago, and duly reported, in which sarcoma had been microscopically diagnosed and they are well.

Dr. Elsworth Smith, Jr., said the greatest interest, from the standpoint of the internist, centered in the diagnosis. He did not recall a case of retroperitoneal sarcoma, but mentioned a case of retroperitoneal carcinoma that was very interesting from the standpoint of diagnosis. The patient was a woman of 60 who developed all the symptoms of a malignant trouble of the stomach. She finally went East and was examined by a prominent diagnostician who said he did not know what it was, but it was not the kidney. Dr. Smith and Dr. Fischel studied the case and finally decided that the trouble was in the kidney. The autopsy disclosed carcinoma of the right kidney with metastatic involvement of the glands in the mediastinum. The symptoms in the early stages of the disease were typical of trouble in the stomach but at the autopsy the stomach was found quite free from involvement.

The early diagnosis of a retroperitoneal growth is like a good many cases of early involvement of the stomach in malignant disease, it must be settled by exploratory incision.

Dr. McCandless believed the time would come when through the aid of the internist, physiological chemistry and blood examination, some means would be evolved which would enable us to make an early diagnosis of this variety

of tumor. He mentioned a case of a child of three years brought to him with a diagnosis of bowel obstruction. On opening the abdomen and turning back the omentum he found a large mass with the intestines so involved that it was impossible to do anything for the patient. A section was removed and afterwards pronounced sarcomatous.

Dr. Lutz mentioned two specimens of hypernephroma which he had presented at a previous meeting of the society. In one of the cases a young married woman, 26 years old, having lived in a malarial country, first in Alabama and later in Indian Territory, came to this city. She had a tumor which at first blush suggested renal origin.

In about six months she came back thinking she had malaria. He found the glands in the retroperitoneum had become involved and the secondary appearance produced a tumor which was much larger than the original one.

In regard to sarcoma he said probably all had seen sarcoma in children. He had removed a tumor from a child of about two years the tumor being about as large as a good-sized cocoanut. In removing the tumor he found a number of retroperitoneal glands involved.

Speaking of the diagnosis, he said retroperitoneal tumors involve the region through the retroperitoneal glands and often have their origin somewhere else. He did not think any particular type of symptoms could be called characteristic of the condition. The general clinical picture will always be added to by the location of the tumor. The surgery of it rather means the relief of symptoms than the total extirpation of the disease. He could not understand how we can formulate, even with large experience, a certain group of symptoms whereby we could make a diagnosis. He thought the symptoms would always be modified by disturbances to which the peculiar location would give rise.

Dr. Luedeking had seen no small number of cases of sarcoma in children, but he could not recall a single case which could be traced back to the region of retroperitoneal tissue. A remarkable thing about cases of abdominal sarcoma in children is the length of time they oftentimes live. He mentioned one case, that of a child of two years, in which there was a history of traumatism from falling upon the abdomen. After some months the abdomen became enlarged. The child drifted to the clinic and the case was diagnosed abdominal sarcoma of traumatic origin. There were none of the ordinary symptoms of involvement or obstruction of the bowels. The case went to the city hospital and at the autopsy the entire mass of intestines could be lifted out of the abdomen with the sarcomatous mass, the coils of intestines representing tunnels in the sarcomatous mass.

Speaking of the specimen of hypernephroma he said he did not believe that this condition was ever of a benign character. He described a case of neoplasm of the left kidney in a baby fifteen months old which developed rapidly and the diagnosis of probable sarcoma of the kidney established. Operation was performed but the tumor was found so intimately attached that it was decided to return the tumor to the cavity. Coley's toxin was used with no definite result and the x-ray applied. This was continued and after some months a gradual improvement took place and the tumor, at first perfectly globular, now presents a rugged surface indicating that cicatrization is going on.

Dr. Mudd recalled a case of retroperitoneal sarcoma seen at the city hospital. The diagnosis was made by exclusion although the tumor was thought to be a simple one. On operating the tumor was found in the lumbar region and was pronounced sarcomatous. There was marked edema of the leg.

Dr. H. McC. Johnson mentioned a case of hypernephroma which involved the pelvis of the kidney extending to all of the large vessels of the abdomen. The symptoms resembled those of colic of stone but were characteristic in that between the hemorrhages the urine was normal.

Dr. Carson said his experience was limited to three cases. One case had been mistaken for an ovarian tumor until the incision had been made; the condition found was such that no attempt was made to remove the tumor. The next case was of doubtful diagnosis and when operated on a large retroperitoneal tumor was removed. The other case was a large retroperitoneal tumor that had been diagnosed as a solid tumor of uncertain origin. In two of the cases the microscope confirmed the diagnosis of sarcoma.

In regard to the symptoms he said he could not see how we were likely at any time, no matter how much progress may be made, to be able to make a certain diagnosis in these cases. The symptoms are very indefinite until the tumor has attained an enormous size and the symptoms of waste out of all proportion to the size of the growth and the rapidity of its development. He did not believe, therefore that we would ever be able to establish definite symptoms that would enable us to make an accurate diagnosis of this condition.

Dr. Munro, in closing, said there was a large field for work in the matter of the diagnosis of retroperitoneal growths. We must go through a period of discouragement taking only hopeless cases and working backward until we can diagnosticate a case in the early stages just as now we can detect a case of appendicitis or ulcer of the stomach, or gall stone.

In hypernephroma, before detaching the growth it is best to tie off the renal vein. The symptoms of location of retroperitoneal sarcoma can be divided into two classes. The lower tumors produce symptoms of pressure on the iliac vein. Sarcoma of the retroperitoneal space do not cause trouble in organs near which they lie. They may produce dyspepsia, but they do not interfere with the chemical function of the stomach. He believed the time will come when we shall be able to diagnosticate these cases; physiological chemistry will help negatively in that if we do not find typical chemical reactions we can exclude cancer or ulcer and finally can narrow down the question until we arrive at the diagnosis.

ST. LOUIS SURGICAL CLUB.

Meeting of May 10, 1906.

Dr John Young Brown presented two specimens, one a strangulated femoral hernia, the other a ruptured ectopic gestation.

Dr. Vilray P. Blair reported a case in which the appendix was $7\frac{1}{2}$ inches long, all but the last $\frac{3}{4}$ of an inch enclosed in the mesentery of the small intestine. In the tip end he found a No. 8 shot and in the middle portion a bone. There was nothing to indicate that the patient had ever had any trouble with the appendix.

INJURIES TO THE DIAPHRAGM.

Dr. Walter C. G. Kirchner read a paper with the above title for which see page 639.

DISCUSSION.

Dr. John C. Morfit said that possibly the injury had been such at the first stabbing that a hernia had resulted, but there was nothing to exclude the possibility of a congenital hernia. The question arose whether there might

not be some cases in which a rupture of the diaphragm might occur without external injury, as occurs in concussion, lacerations of the stomach, kidneys, etc. It would be very difficult in such a case to make a diagnosis without exploration.

Dr. John Grant said that a very interesting question was whether this hernia was the result of an old stab wound. It recalled a case he had seen at the City Hospital in 1889. A man was brought in with a stab wound in the back at about the 8th or 9th rib. It was supposed to be merely a penetrating wound and the patient made a perfect recovery. About a year later he was again brought to the hospital in a state of collapse with symptoms of obstruction of the bowels. Operation disclosed a loop of bowel had passed through the diaphragm just at the point where the knife had originally entered. This emphasized the importance of a thorough examination in cases where there was a suspicion of the diaphragm being injured.

Dr. M. B. Clopton wanted to know whether there was approximation of the edges of the wound at this time or whether there was a gaping. He thought it would be a difficult matter to diagnose these injuries for it seemed that the edges of the wound would hold together pretty well. He also asked the length of the interval which elapsed between the time of injury and the time of operating, and how long before these patients showed evidence of shock or of disturbance.

Dr. Jonas said that the question was, should we operate when there was a suspicion of a non-complicated injury to the diaphragm? It was possible to exclude, with reasonable certainty, injury to the large bowel by ballooning the colon, and injury to the stomach could be excluded by injecting air into the stomach. Under such circumstances it was doubtful if a suspected rent in the diaphragm deserved further investigation. The diaphragm was a muscle, and a tear or trauma to that muscle might heal very well without sewing. In course of time a prolapse might occur, but in that event we might do the operation Dr. Kirchner described, either thoracic, abdominal or combined.

In regard to the specimen presented by Dr. Kirchner, to suppose that this was a case of congenital hernia, or an injury that occurred a good while before the operation in the area, would be a very peculiar coincidence. On the other hand the hernial sac in this specimen would force conclusion that the injury had extended through the diaphragm but not through the peritoneum, and the peritoneal sac had formed between the time of the first trauma and the operation.

Dr. V. P. Blair stated that between a line drawn around the body from the lower border of the gladiolus to the spine of the 9th dorsal vertebra, and another along the lower border of the bony thorax, would be the surface outline of the diaphragm. In this region any penetrating wound passing four inches vertically inwards from the surface of the ribs would perforate the diaphragm. The important thing was not the perforation of the diaphragm but the perforation of the pleural portion of the diaphragm. In front and behind the attachment of the pleura corresponded to that of the diaphragm. The pleura followed, roughly, the sixth cartilage and would cross over to the junction of the seventh rib and cartilage, and about the mid-axillary line would just about correspond to the upper border of the 10th rib, then passing back would cross the 11th rib taking a slightly upward course. At the mid-axillary line the pleura did not extend down to the attachment of the diaphragm by about two inches, so if the diaphragm was injured at that point nothing but the abdominal wall was injured. The diaphragm itself was nothing

more than a portion of the transversalis muscle, and below the pleura it lay close against the ribs forming a part of the abdominal wall.

The muscular fibers pass upward and toward the middle point of the diaphragm, the vertical part being muscular and the transverse part tendinous. A knife cutting transversely would be very apt to cut across some of the muscle fibers and leave a gaping wound, while if the knife entered from the front where it could cut through the cartilage, the wound might be in the direction of the muscle fibers of the diaphragm and there would be less liability to a prolapse. An artery, the musculo-phrenic (a branch of the internal mammary), passes across the diaphragm, and this artery might be injured in a wound of the diaphragm. The fact that a knife entering below the last rib behind might enter the pleura, or injure the pleural diaphragm, should be remembered. (See "Topography of Vertebral Spines and Ribs." *Jour. Mo. State Med. Ass'n.*, Vol. 1, No. 10, 1905.)

Dr. Kirchner, in closing, said that in most of the cases where the hernia was of congenital origin the patient was not as old as this patient; and in the specimen he could see no definite defect that might be ascribed to congenital origin. The location of the external scar as related to the condition of hernia warranted with reasonable certainty the belief that this was a traumatic hernia and was of a true type. In stab wounds the diaphragm was often only slightly injured, but that cut was sufficient to weaken the wall and it should be repaired, if the condition warranted it, for, as in this case, there would otherwise be the possibility of a bad result. The position of the omentum and of the viscera spoke against congenital hernia. These wounds might be received from any direction and wounds in the tendinous portion may remain open. The easiest method of suturing the diaphragm was by the thoracic route because the diaphragm was thus pushed up into view. By cutting straight through and severing the ribs, a flap is made which when replaced leaves little deformity. By the abdominal route it could be reached with comparative ease by putting the finger into the opening and pulling it forward, something not usually thought of by operators. In these operations on the diaphragm the operator must deal with two cavities; the patient breathes mostly with one lung, while conditions in the abdominal cavity are dealt with, and this combination of conditions made the operation a serious one. As to the advisability of leaving these injuries, it should be remembered that such injury usually resulted in hernia of some of these organs and death would occur sooner or later by strangulation. Injuries to the diaphragm over the spleen and over the liver need not always be repaired. These would close naturally. But when the free portion of the diaphragm was injured it was a different matter. The musculo-phrenic artery going along the outer portion was an important vessel, especially in those wounds cutting across the costal margin.

BOOK REVIEWS.

PRACTICAL GYNECOLOGY. A Comprehensive Text-Book for Students and Physicians. By E. E. Montgomery, M. D., LL. D., Professor of Gynecology, Jefferson Medical College, Philadelphia. Second Revised Edition. With 539 Illustrations. Philadelphia. P. Blakiston's Son & Co. 1903. Price: Cloth, \$5.00.

This second edition contains many changes in the arrangement of the different divisions, which will prove of special benefit to the student. Of course all the later operative procedures had to be described, which necessitated practically rewriting of a large portion of the volume and the addition of seventy pages.

In its present form this treatise is one of the best and most commendable presentations of gynecology.

THE PHYSICIAN'S WIFE. By Ellen M. Firebaugh. Illustrated with 44 Photo-Engravings of Sketches from Life. F. A. Davis Co., Philadelphia. 1904.

Somewhat chagrined by the fact that the famous book, "The Physician Himself and the Things that Concern His Reputation and Success" does not contain any allusions to the doctor's wife as a possible factor in his reputation and success, the author decided to write this little volume "on things that pertain to the physician's wife." She has fulfilled her task in a clever manner. The book contains many a thought and observation that should prove of interest to the physician, both to the one who has a wife, and the one who expects to have one some day.

VOM SICHINACHTNEHMEN. Studien aus 45 jaehriger Praxis. Von Dr. Mensinga. Neuwied & Leipzig. Heuser's Verlag. 1905.

Mensinga, probably the best known German defender of the justifiability of prevention of impregnation, in this little monograph dwells at length on the dangers of coitus interruptus, a means of prevention which is extensively practiced in Germany and certainly is not unknown in this country. The importance of coitus reservatus in the etiology of many diseases is to-day well recognized both by the neurologist and the gynecologist, but its dangers are undoubtedly greatly exaggerated by the writer of this booklet.

DIE DIATETISCHE UND HYGIENISCHE BEHANDLUNG DER ZUCKERKRANKHEIT. Von Dr. Karl Grube. Third Edition. Bonn, Carl Georgi, 1906. Price: Mks. 3.

In a small volume of some 111 pages, Dr. Grube manages to cover concisely but adequately the dietetic and hygienic therapy of diabetes mellitus. In the first fourth of the book he discusses the general principles that should govern such treatment. He contends that every case of diabetes that comes for treatment should at once be placed on a strict diet, one nearly free from carbohydrates. If the glycosuria persists, this strict diet should so far as possible be continued indefinitely. If the glycosuria ceases, carbohydrates are gradually added to the patient's dietary until the limit of tolerance is reached. The patients are then kept on a diet just below this limit. In other words no diabetic should be allowed to have a glycosuria if it can be avoided and where the glycosuria cannot be abolished it should always be kept as low as possible. He does not share the fear of coma as the result of a strict carbohydrate-free diet, believing that nothing we can do will prevent or postpone this catastrophe.

Not all physicians, especially in this country, will subscribe to this doctrine in its entirety. Many of us are inclined to depart from this regimen, especially

in the very mild and in the very severe cases. In the latter it is often a useless cruelty and in the latter, as when for instance an elderly Hebrew excretes small amounts of sugar for years with no impairment of health, dietary restrictions sufficient to abolish the glycosuria are often unnecessary.

For the following three-fourths of the volume, however, there can only be praise. The writer takes up in detail the various diabetic foods, exposing the fraudulent character of most of the substitutes for flour and for bread that are so extensively advertised. In an interesting discussion of the effect of tobacco on the diabetic he calls attention to the danger of irremediable amaurosis to which the free indulgence in smoking exposes these patients. An appendix contains sample dietaries and careful instruction regarding the preparation of a number of dishes suitable for diabetics. An index would have added to the value of the book, which well deserves translation.

TRANSACTIONS OF THE AMERICAN CLIMATOLOGICAL ASSOCIATION FOR THE YEAR 1905. Vol. xxi. Detroit: Printed for the Association, 1905.

The leading article is one on conditions in Panama apropos of the recent Pan-American Congress there. It is accompanied by a number of beautiful illustrations and is of great interest. Hygienic conditions at the Isthmus are still bad enough but are rapidly improving. The main struggle of the American sanitarians seems to be directed against the ubiquitous mosquito. The other articles are chiefly concerned with the climate of various American localities and with topics connected with tuberculosis.

REPETITORIUM DER PHARMAKOLOGIE. REPETITORIUM DER HYGIENE. Für Studenten und Kandidaten der Medizin. Juenger's Medizinische Universal—Repetitorien, Nos. 4 and 5. Preis br. M., 1.50. Breslau: 1906, Verlag von Preuss und Juenger.

These repetitoria correspond about to our quiz-compends. They cover as nearly as possible the main facts in each branch in a concise manner suitable for memorizing and are especially suited for students cramming for examination. Physicians preparing for state examinations may also find them useful.

MATERIA MEDICA AND THERAPEUTICS. By J. Mitchell Bruce. Chicago, W. T. Keener & Co., 1906.

This little volume illustrates well one of the triumphs of modern book-making. Its thin but opaque paper enables this volume of 632 pages to be kept within so small a compass that it can readily be slipped into the pocket. The subject is covered briefly, but sufficiently for ordinary purposes. Any one desiring more exhaustive information will, of course, have to consult one of the larger text books.

DISEASES OF THE EYE. A Handbook of Ophthalmic Practice for Students and Practitioners. By G. E. De Schweinitz, A. M., M. D., Professor of Ophthalmology in the University of Pennsylvania and Ophthalmic Surgeon to the University Hospital. With 313 illustrations and 6 chromo-lithographic plates. Fifth edition, thoroughly revised. Philadelphia and London: W. B. Saunders Company, 1906.

About two years ago the reviewer had occasion to write a short note on the fourth edition of Prof. De Schweinitz' excellent text-book. The opinion then expressed, that this work was, on the whole, the best medium-sized treatise by an American author on Diseases of the Eye is confirmed by the fifth edition, in which the author has brought the subject thoroughly up to date. A number of special paragraphs appear for the first time and certain portions of the book have been entirely rewritten. The work is authoritative, well balanced and eminently readable, and will unquestionably enhance the already great reputation of the author.

THE OPHTHALMOSCOPE AND HOW TO USE IT. With colored illustrations, descriptions and treatment of the principal diseases of the fundus. By James Thorington, A. M., M. D., Professor of Diseases of the Eye in the Philadelphia Polyclinic and College for Graduates in Medicine, Etc. 73 illustrations, 12 colored plates. Philadelphia: P. Blakiston's Son and Co., 1012 Walnut St., 1906.

"This book has been written for the student and general practitioner who desires to obtain a working knowledge of the ophthalmoscope with the interpretations of its findings and has not the time, ordinarily, to study a large text book on the diseases of the eye in which the subject is too deeply embedded for immediate comprehension."

It must be admitted that the purpose of the book as set forth in the above quotation from the preface has been admirably fulfilled. Handy, well arranged and adequately illustrated, it will provide the busy practitioner with the opportunity of studying fundus conditions dependent on general disease. Since the advent of the easily manipulated electric light ophthalmoscope many internists and neurologists have added this instrument to their other armamentarium and have found it of inestimable value in many instances. It is the belief of the reviewer that this little work will still further popularize the instrument in the hands of the general practitioner.

NURSING IN THE ACUTE INFECTIOUS FEVERS. By George P. Paul, M. D. Philadelphia and London: W. B. Saunders Co., 1906.

Nurses for whom primarily this book is intended, will find here an adequate presentation of the subject from their point of view.

NEUROTIC DISEASES OF CHILDHOOD. By B. K. Rachford. Publishers: E. B. Treat & Company. New York. 1905.

It is perhaps unfortunate that this book should be reviewed by anyone who might approach it with any kind of critical attitude. It is probably a useful book in the way of containing certain clinical facts from the author's own experience, which apparently has been extensive enough to warrant their preservation in printed form. Beyond this it is questionable if the book has any *raison d'être*, certainly not in proportion to its manifest errors and especially not for the tendency, which is so emphatically shown in the first pages, of speaking with certainty concerning things in which the greatest amount of uncertainty prevails. To insist loudly that a thing is so never made it so, and to repeat an error many times does not make it a truth. The author, confessedly a pediatrician, starts out with a calm definition of the function of the nerve cell. He speaks of discharge of energy, immaturity of the nerve cells of a child, the "highest function of the nerve cell is to generate energy," and other things the very existence of which are matters of the greatest doubt. It might be well to state here for the author's benefit that the function of the nerve cell is not known at the present time and it is useless to insist in a clinical treatise that it is positively known. A glance at the recent literature on the subject will convince anyone that there is at least considerable doubt on the subject. The author having settled for himself the physiologic groundwork of his subject goes on to treat the various functional, or as he calls it, neurotic diseases of childhood upon the foundation he has erected. The same cocksureness characteristic of the early pages is found throughout the book. The same avoidance of the literature of neurology is manifest. The author gives a definition of epilepsy that is open to serious criticism and then divides epilepsy into three divisions: developmental, organic, and toxic. Having said, a few lines before, that the pathology of epilepsy is unknown he immediately makes a classification which he designates as based upon its pathology. A slight acquaintance with the literature will show the author that epilepsy has at present simply a clinical classification and that only for convenience. Hysteria according to the author is a psychoneurosis due to functional disturbances of the cortical centers. No one can object to this definition because

it is simply decorative. In the chapter on migraine the author emphasizes errors that should be left out of the literature. The xanthin bases are not the causes of migraine as the work of Pfaff and others has shown and eye strain cannot be said to be the most important factor in the etiology of the disease. This is the opinion of Gould, which, however, at present is not accepted by the best informed neurologists. Enough has been mentioned to show the obvious defects in this book, defects which must always be present when a writer wanders afield into strange territory and leaves his guide too soon behind him. The diseases affecting the nervous system of a child are the same as those affecting an adult and if a pediatrician chooses to write about them he should at least take the pains to find out something about the work of neurologists in the field he is attempting to cover.

ATLAS DER CYSTOSKOPIE DES WEIBES. Von Dr. Wilh. Zangemeister. Privatdozent der Universitaets-Frauenklinik in Koenigsberg. 54 farbige Illustrationen. Verlag von Ferdinand Enke. Stuttgart. 1906. Preis: 24 Mk.

The fact that the importance of cystoscopy is gynecologic diagnosis becomes better appreciated every day, and that, on the other hand, cystoscopy in the woman is in certain aspects different from that in the man, induced Zangemeister to publish this atlas. After a few introductory remarks the author presents, first, a number of colored pictures illustrating the typical diseases of the bladder. Of greater interest to the gynecologist is the second series of illustrations elucidating conditions which are met with only in women, such as certain fistulæ, the appearance of the interior of the bladder in cases of uterine myoma and carcinoma, in the presence of an ovarian cyst, a malposition of the uterus or inflammatory processes in the neighborhood. Very interesting are the pictures of contusions of the bladder found subsequent to labor. The illustrations are made by the author himself because he found that he could make the drawings represent nature more closely than an artist could. In their reproductions in three color print the pictures do not look exactly beautiful, but one experienced in cystoscopy can easily recognize that they are true to the picture as actually seen in the cystoscope and, therefore, are more valuable to the student.

PRECIS D'OBSTETRIQUE. Par A. Ribemont-Dessaignes et G. Lepage, Professeurs agrégés a la Faculte de Medecine de Paris. 568 figures dans le texte. Sixième Edition. Paris. Masson et Cie, Editeurs. Prix: 30 fr.

This large treatise of obstetrics has been published in a new thoroughly revised edition, the sixth since its first appearance in 1893. It is usually claimed that medicine is an international science and, therefore, it would seem out of place to speak of French obstetrics. Nevertheless it could hardly be denied that obstetrics as presented in this volume is not exactly identical with the obstetrics taught and practiced by leading American or German authorities. Certain peculiarities of a race, the temper of both the physician and the patient, external conditions peculiar to certain localities and many other factors, of necessity, make medicine in certain aspects a national science, especially in its practical application. It seems more than a personal predilection of the author that for instance 42 pages of this volume are devoted to a consideration of symphysiotomy, an operation invented, as is well known, in 1777 by the Frenchman Sigault, but very rarely executed today outside of France. It is just this local color, such a national partiality, which makes the perusal of a foreign book not only interesting but also, extremely valuable.

THE PRACTICE OF GYNECOLOGY. Original Contributions by American Authors. Edited by J. Wesley Bovee, M. D., Professor of Gynecology in George Washington University, Washington, D. C. Illustrated with 382 engravings and 60 full page plates in colors and mono-chrome. Cloth, \$6.00 net. Lea Brothers & Co., Publishers. Philadelphia and New York. 1906.

This is the first of a series of three companion volumes dealing respectively with gynecology, obstetrics and pediatrics. One of the striking features of this

book is that it is not strictly limited to gynecology, but also considers exhaustively the diseases of the neighboring organs, bladder and rectum. In this way the scope of the volume has been made broader than that of the usual textbook of gynecology. In order to secure the advantage of the maximum of practicality and to present the vast and important subject in the most complete manner possible, the author has assigned various chapters to six other recognized writers. Of course, each of the seven contributors has striven to embody into his chapters the maximum of scientific, interesting and practical information, which marks another noteworthy feature of this volume. We doubt that the subject of genital fistulæ e. g., ever has been presented in a more satisfactory manner, or tubal inflammations and their operative treatment considered in a more comprehensive form. Men like Goffe, Miller, G. H. Noble, Schenck, Watkins and Werder, under the guidance of Bovee, could not fail to produce a treatise of unusual merits.

DER DESCENDENZGEDANKE UND SEINE GESCHICHTE. Dargestellt von Dr. Edgar Daqué. Muenchen. Ernst Reinhardt, Verlag. Preis: 2 Mk.

The theory of evolution can today be found as the underlying principle of almost every new biologic investigation or discovery. The modern physician has accepted this theory as an established fact. He, therefore, cannot fail of being interested in the history of the gradual development of the evolution theory as presented in the little volume before us. After having given in the first part of the booklet, a clear and comprehensive expose of this theory, the author, in the second part, follows the first traces of this thought of evolution from the bible up to Darwin, and concludes with a consideration of the most recent literature on the subject.

THE EYE AND NERVOUS SYSTEM. Their Diagnostic Relations. By Various Authors. Edited by Wm. Campbell Posey, Professor of Ophthalmology at the Philadelphia Polyclinic, and Wm. G. Spiller, Professor of Neuro-Pathology, at the University of Pennsylvania. Octavo. 800 pages. Thoroughly illustrated. Cloth, \$6.00. With 22 chapters by the leading specialists of the United States. J. B. Lippincott Co., Philadelphia and London.

A book of this kind has been much desired by English readers ever since the monumental work of Wilbrand and Saenger in German has shown how necessary such a compilation is to both the oculist and the neurologist. To be of the greatest practical utility a book on such a subject must be of a size that can be readily consulted and readily handled and of sufficient brevity to enable one to get the whole content under any special heading in a reasonable time. This is not the case with the larger works, but is so in the present instance. A number of well-known ophthalmologists and neurologists have taken part in the writing of the book and, consequently, it suffers, as all books will suffer which are the joint product of many different writers, all of them not having the same degree of excellence insofar as the talent of presentation is concerned. In other words, the chapters are very uneven, some deserve the highest praise, some are indifferent and some ought to be omitted in the next edition. In the first place the chapters written by the editors are uniformly good, this refers especially to Spiller's contributions. Posey's are limited to two chapters, one of which on the psychological effects of operations on the eye is most admirable. So excellent are those parts written by the editors that one wishes they had written the whole book. Knowing the standard of work which Spiller and Posey stand for one can be assured that they have in their possession all the necessary data for a book of this kind and a facility in expression that is not by any means found in all the collaborators chosen by them for the making of this book. Nothing better than Spiller's introductory chapter has been met with recently. It deals with the anatomy of the intracranial portion of the encephalic nerves. It is brief, clearly written and somehow leaves one with the impression that all the latest literature has been carefully considered. The quality of this achievement can be readily understood when the immense activity in the study of the normal anatomy of the nervous system of late is taken into account. Mills' chapters on

the psychology of vision and the focal diseases of the visual cortex, deserve especial mention. Mills writes on a subject like this with the conviction that only comes from an increasing amount of carefully observed clinical material. This chapter forms a well planned resume of all the knowledge that we have on the subject, tintured naturally with the well known views of Mills. This adds interest to a subject, the physiology of the nervous system, which is in a sense his own special field. A chapter on the general examination of the eye from Casey Wood and one on the ophthalmoscopic examination from Wurdemann will be of great help to the neurologist, especially in the importance which is given to the correct examination of the field of vision. The chapter on brain tumors by Spiller is worthy of attention and it places in a very concise form the latest information which we have on the subject, especially from the point of view of cerebral localization. Exception must be taken to the chapter on the effects of eyestrain in the causation of various neuroses. This is written by Risely. It is a queer commentary on the attitude of medical writers towards mooted questions, such as this, that in writing they seem unable to take a sane and just position, forgetting apparently that never was a question of fact settled by intemperate assertions. It is not essential as far as the reviewer sees, to adopt immediately a dramatic and highly colored style whenever the subject of eyestrain is written about. This attitude is no doubt due to the example of militant writing set by the intemperate Philadelphia advocate of the eyestrain theory. That eyestrain has a certain place in the etiology of neuroses is no doubt true, but that it is the all important thing that the writer of this chapter would have us believe is not so readily admitted, notwithstanding the highly dramatic quality of the clinical histories which, without a sense of their unfitness, he includes in his chapter in the attempt to prove his assertions right up to the hilt. There are a number of chapters which might be omitted to the betterment of the book. Their uselessness creates a certain feeling of irritation on the part of the reader and a desire to know why they have been included. Such chapters as the surgical treatment of intracranial lesions, the surgery of trigeminal neuralgia, tremors, reflexes, gaits and degeneracy, certainly have no place in a book which pretends to treat of the relation of the eye to nervous diseases.

As a whole the book can be said to fill the place for which it was designed. It does this well enough to attract readers and to instruct them well and pleasantly. The faults of the system of collaboration, useless in this instance, will make plenty of room for the final book on this subject which this certainly is not. The reviewer wishes to suggest that Spiller and Posey in the next edition of the book leave out the collaborators and write the book themselves, in which case we will have a book which will cause all of us to rejoice.

ARCHIV FUER PHYSIKALISCHE MEDIZIN UND MEDIZINISCHE TECHNIK. Herausgeben von Dr. H. Kraft und Dr. med. B. Wiesner. Verlag von Otto Nemich in Leipzig. Preis pro Band (4 Hefte) Mks. 12.00.

One of the most characteristic features of modern medical science is its close relation to the science of physics. Practically every new discovery in the field of physics has been exploited in medicine to advance diagnosis and therapy. We may only mention the ion-theory, the permeability of tissues for the X-ray or radioactivity. It is this new aspect of scientific and practical medicine to which these "Archives" are devoted. The first volume of this publication is now completed and by its variegated and interesting contents it is proved that there was a need for just such a journal. Besides a great number of excellent original articles we find in this volume comprehensive reviews of all those recent advances and discoveries in the physical-chemical and photographic industries which pertain to medicine.

PROGRESSIVE MEDICINE. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M. D., assisted by H. R. Landis, M. D. June 1, 1906.

The volume just issued contains reviews of the literature on the following special subjects: Hernia, by William B. Coley; Surgery of the Abdomen, ex-

clusive Hernia, by Edward Milton Foote; Gynecology, by John G. Clark; Diseases of the Blood. Diathetic and Metabolic Diseases. Diseases of the Spleen, Thyroid Gland and Lymphatic System, by Alfred Stengel Ophthalmology, by Edward Jackson. In completeness and clearness these articles stand unsurpassed.

KOMPENDIUM DER ROENTGENOGRAPHIE. Ein Praktisches Handbuch von Ingenieur Friedrich Dessauer und Dr. med. B. Wiesner, mit 201 Illustrationen im Text, 11 Tafeln in Autotypie und und 12 Radiographischen Tafeln. Verlag Otto Nemnich, Leipzig, 1905.

The first part of this work contains a thorough consideration of the Physics of the X-Ray. Following this, the various appliances in use at the present day are taken up and carefully considered. Fluoroscopes, storage-batteries, tube-stands, and, in fact, all the appliances of the most modern type, are described. The chapter on the Technique of Taking Pictures is well illustrated showing the best positions in which to place the patient in order to get the best results. The x-ray plates which form the appendix of this book are of the highest type of x-ray photography.

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ORIGINAL ARTICLES.

THE RELATIVE VALUE OF THE SURGICAL PROCEDURES EMPLOYED FOR THE RELIEF OF PARALYSES FOL- LOWING ACUTE ANTERIOR POLIOMYELITIS.

By NATHANIEL ALLISON, M. D., St. Louis, Mo.

Introduction.—When it is once demonstrated that a disease, or the results of a disease, may be alleviated by surgery, over-enthusiasm is apt to prompt the surgeon to the injudicious use of the advocated methods on poorly selected cases, the subsequent relapse of which is sure to produce a condition of adverse criticism and doubt, which is again overcome and removed as the work is taken up, with the profit added from past experience gained by failure. So it is with the surgical methods employed for the relief of the paralyses which follow acute poliomyelitis anterior. These paralyses and their attendant deformities and disabilities make of the individual who has weathered the storm of the acute disease, an interesting field for surgical endeavor,—surgical endeavor, too, which presents an unequalled variety of intricate problems which involve mechanical, physiological and surgical knowledge. At the present time the value of the various methods for the relief of these paralyses has been proved. They have passed through the stage of uncertainty, and now stand well defined as established surgical procedures.

The acute disease.—It may be well, before taking up the subject of treatment, to give a slight abstract of the latest statements relative to the pathology of the acute disease. Acute anterior poliomyelitis is now generally conceded to be an inflammation of the gray matter of the anterior horns of the spinal cord. The opportunity for post-mortem study of this disease has been rarely obtained. Such cases as have presented themselves, however, have shown a congestion of the blood-vessels and round-celled infiltration about the vessels within the nerve tissue. The paralysis develops early and is usually extensive; more so at the time of acute onset than in the later stages. Some of the nerve-cells of the anterior horns are so seriously damaged that they are incapable of regeneration. Other nerve-cells are capable of at least partial restoration, and function returns to the muscles which they enervate. It is

said by Spiller and Frazier that the paralyzed muscles in poliomyelitis anterior, which remain permanently paralyzed, represent the nerve-cells of the anterior horns which have degenerated, and that the muscles which have recovered represent nerve-cells which have regained their function. Muscles that still remain paralyzed after six months are not liable to regain contractile power. For the consideration of this paper, it is only necessary to regard the individual who has passed through this acute disease, has recovered partially from its effects, and is now crippled or deformed as the result of the paralysis of certain of his muscles, or certain of his muscle-groups.

The development of the operative procedures.—Before 1881 surgical intervention for the relief of these paralyses was confined to the use of apparatus such as braces, splints and leggings, and the occasional division of tendons. In 1881 Nicoladoni first performed tendon-transplantation. His operation consisted in inserting the central ends of the peroneal tendons into the tendo Achillis, for the relief of talipes calcaneus. This operation promised well in the beginning, but the transplanted tendon pulled out of its insertion, and the operation was regarded as a failure. In 1892 Drobniak in Germany and Parrish in New York revived this operation in a modified form. Since this date many operators have taken up the work. Bradford in Boston, Hoffa, Vulpeus and Lange in Germany, and Kirmisson and others in France have done much for the progress of this surgical procedure. What was originally tendon-grafting was extended to muscle grafting by Goldthwaite of Boston. Lange advocated transplantation and periosteal insertion of tendons and the employment of muscular power of stronger muscles by the means of lengthening their transferred tendons with silk cords. Tendon-transplantation may now be said to include muscle-insertion, muscle-transference, muscle-shortening, tendon-shortening, tendon-lengthening and transplantation, periosteal insertion of tendons, and the added method of lengthening the tendons by silk sutures.

Coupled with this conception of tendon-transplantation, operations upon the bones have been advocated.

Arthrodeses.—Arthrodesis finds its place in the treatment of infantile paralysis, when a joint is hopelessly flail-like. The object of arthrodesis is to make the part stable, that is, to afford in the extremity affected the conditions which would otherwise have to be supplied to it by the use of stiffening braces. Arthrodesis has been coupled with tendon-transplantation by Whitman. These operations are not designed with the object in view of securing a perfect functional result, but they have for their object the establishment of such stability in the part as will enable the patient to progress without apparatus. Arthrodeses have been done on the tibio-astragaloid joint, and also by the removal of the astragalus,—what is known as astragalectomy.





FIG. I. Poliomyelitis anterior. Left lower extremity alone involved. Atrophy, shortening, equinus, causing lateral deviation of spine.

Treatment. Arthrodesis, tenotomy of tendo Achillis, apparatus with heightened sole to compensate for shortening.

Result. Disappearance of spinal curve. Marked improvement in gait and ability to stand.



FIG. II. Poliomyelitis anterior. Both lower extremities involved. Flexion of thighs. Quadrupedal gait

Treatment. Arthrodesis both ankle joints. Transplantation of both sartorius muscles into the paralyzed quadriceps tendons. Division of contracted fasciæ latæ. Apparatus.

Result. Ability to assume the upright position. Gait active, but requires crutch support.



Nerve transplantation.—In cases where few muscles are paralyzed and where there are motor-nerves in the vicinity, it may be used whenever transplantation has been accomplished, with beneficial results. This was first done by Peckham of Providence, in 1900. He united healthy nerve-fibers with degenerated nerve-fibers in a case where paralysis had existed for 10 years, the result being return of function. Much of the work which has been done on nerve-transplantation has been accomplished by Spiller and Frazier of Philadelphia. The first case operated upon by them was one in which the anterior tibial muscle alone was paralyzed. The patient was a child. The operation was done by J. K. Young. The perineal nerve was exposed; the upper division of this nerve, which contains four or five branches, was grafted into the musculo-cutaneous nerve and united by fine catgut sutures. After two months some movement in the anterior tibial muscle was observed. After a year the gait is nearly normal and the child can draw up the inner side of the foot with normal power. Experimentally much work has been done on the subject of nerve-transplantation by Spitzzy in Austria. His experiments proved conclusively that there will be regeneration of nerve-power in anastomosed nerves. Tubby in England has performed several successful nerve-transplantations. He has grafted the distal facial trunk for fascial paralysis into the hypoglossal nerve, with successful result. This had formerly been accomplished by Cushing of Baltimore. Tubby has also grafted the nerves from the soleus and gastrocnemius, from the internal popliteal to the external popliteal, with recovery from paralytic talipes calcaneus. Again he has relieved paralytic talipes equinovarus by insertion of the external popliteal into the internal popliteal nerve.

There are several points connected with nerve-transplantation which it is well to mention in this connection. In one of the cases where the facial nerve was transplanted to the hypoglossal, there occurred a slight atrophy of the tongue. Again we have to consider whether the muscle which has been again brought to life by such an operation can learn to functionate independently, as it has been noticed that some of the facio-accessory anastomoses have resulted in a simultaneous movement of the trapezius and the face. We must attempt in these operations to create independent muscle function.

So much in a general way has been accomplished by the surgical procedures for the relief of these flaccid paralyses, it is the purpose of this paper to consider their relative value, and the application of each of these procedures to cases best suited for the demonstration of their merit.

The relative value of these procedures.—The merit of each of these surgical procedures, that is, of braces, tenotomies, tendon-transplantations, muscle-transplantations, arthrodeses and nerve-grafting, has been

clearly demonstrated clinically. Favorable cases have resulted from the employment of any one, or a combination of these operable procedures. On the other hand, numerous failures have been reported, resulting usually from the operations of tendon or muscle-grafting. The fact that each of these procedures has its definite scope suggests the means for eliminating, or reducing to a minimum, the chance of failure when employing any of these means for the relief of these cases. It seems that a careful selection of cases, and the consideration of each individual case, would be the proper process to which to subject all cases before operative interference is attempted. Dane and Townsend, in an article on the success of tendon-transplantation, conclude that while tendon-transplantation may in certain cases yield a satisfactory result, the selection of cases for this operation should be much more careful than it has been heretofore. Bradford points out also that much depends upon the skill of the individual operator in considering the final results of these operations. Certain principles, however, may be laid down, which will cover the range of muscular power and the chances for success following operative procedure in these paralyses.

The range of paralysis in these cases is a very wide one, extending from complete paralysis of the lower extremities, with involvement of the spinal muscles, and partial paralysis of the upper extremities, to cases where simply one or two muscles are left powerless. Let us first take up the extreme cases, where the limb is left flail-like, and no muscular power which may be utilized returns to any of the muscles. The best that can be accomplished in these cases is to make of the paralyzed limb, a limb similar to an artificial limb, that is one which will bear weight through stiffening by apparatus, or operative procedure. Many of the cases so affected assume quadruped positions. If the lower extremities are particularly involved, the upper extremities take on the function of weight-bearing and progression. For these cases it is necessary to employ apparatus such as will stiffen the lower extremities, that they may be used as props, so that the individual may assume an upright position, supported by crutches. In this connection it may be well to state that the assumption of the upright position is of the greatest importance to the mental attitude of these cases.

Next to this extreme class of cases we may make a division of those less severely affected, where, for instance most of the muscles of the leg are involved, the muscles of the thigh remaining powerful enough to be of use in walking. This class of cases usually does well with braces. Operative procedure, however, is justifiable, in that, by means of it we may discard the wearing of braces. Such cases are much benefited by the employment of arthrodeses, or the similar operation employed at the ankle, of exsecting the astragalus. By means of these operations the limb may be stiffened so that it does not give way under





FIG. III. Anterior poliomyelitis. Involvement of both lower extremities. Extreme flexion deformity at hips. Quadrupedal attitude. Upper extremities developed to high degree of muscular strength. Simian appearance. Double knock knee.

Treatment. Arthrodeses on ankle joints. Transference of sartorius to quadriceps tendon on left side. Exsection of contracted ilio-tibial bands. Double osteotomy for knock knee. Apparatus and crutches.

Result. Ability to assume upright position. Some power of extension of left leg on thigh. Gait active requiring crutches.





FIG. IV. Radiograms. Showing results of destruction of ankle articulations.
Arthrodeses for dangle foot in poliomyelitis anterior.

superincumbent weight, and the muscles that remain may place it in positions favorable to progression.

The third division of cases is of those where certain muscles in the extremity are lost; others are weakened, but there remains full muscular power in the rest. The problem in this class of cases is to utilize the muscles which possess full muscular power, either by transferring their tendons, or grafting their muscle-bellies into the tendons or muscle substance of the weakened or lost muscles. In planning these operations great care should be taken to determine the amount of power that exists in the muscle which is supposed to produce improvement in function by its transference. First, the muscle transferred should be attached in a manner that will make its contraction functionally effective. Second, the tendon into which a strong muscle-tendon is inserted should be strong, that is, it should not be disorganized by paralysis so as to become useless when tension is put upon it. Third, all transferred muscles should be subjected to a certain amount of tension, that is, the strong muscle which is cut should not be left in a relaxed condition after the transference of its tendon. Again, it is to be borne in mind that at the ankle-joint the muscles which produce motion in that joint are of importance, while those that go to the toes are of practically no importance in shoe-wearing individuals. At the wrist, on the contrary, the carpal flexors and extensors are of no importance as compared to the flexors and extensors of the fingers, inasmuch as here prehension is the object of muscular power.

The forms of paralysis which have been most benefited by tendon-transplantations are those which involve the foot. It must be borne in mind that a weak muscle, however, will not be subject to hypertrophy to a sufficient extent to restore the balance of muscular power. The best results have followed the transplantation of the whole or a portion of the anterior tibial to the outer border of the foot, to relieve equinovarus. The transplantations of a portion of the tendo Achillis to the extensor part of the foot for the relief of equinus have also shown distinct improvement. The transplantation of the peronei to the inner side of the foot for the correction of valgus deformity have not been attended by good results. This is also true where the peronei have been inserted into the paralyzed tendo Achillis for the relief of calcaneus. At the knee, the use of the sartorius as transplanted into the quadriceps extensor tendon has frequently resulted in power of extension of the leg on the thigh. The transplantation of the trapezius into a paralyzed deltoid has shown uniformly good results. The combination of arthrodeses, astragalectomy and tendon-transplantation has resulted, in many cases, in marked improvement. This is particularly true in hospital patients, as has been pointed out by Whitman. Uniformly good results follow the employment of arthrodesis at the tibio-astragaloid joint.

To a less degree are the cases successful where astragalectomy has been performed. The foot, where these two operations are done, is usually a strongly functioning apparatus, the tendency to equinus at each step, resulting in dragging of the toe, being entirely overcome.

As to the class of cases where nerve-transplantation is of value, this is a matter still to be developed. The cases which seem most favorable to the transplantation of nerves are those where the paralysis is slight, inasmuch as it involves only one muscle, or one group of muscles. Tendon-shortening and tendon-lengthening, as a rule, yield no permanent benefit.

Conclusions.—(1) In extreme forms of infantile paralysis, the wearing of apparatus and the use of crutches is necessary, that the upright position may be maintained. (2) In extreme forms of infantile paralysis, the wearing of heavy appliances may be materially lessened by the employment of operations designed to fix the joints. (3) In cases where there is good muscular power remaining in strong muscles, these muscles may be used to good advantage by transference of their tendons. Care should be taken that the insertion of these tendons is strong and permanent, and that the muscles pull to the best mechanical advantage. (4) In certain cases, tendon-transplantation may be supplemented by arthrodeses to good advantage. (5) In slight forms of paralyzes, the grafting of nerves is a surgical procedure of recognized merit.

A REPORT OF A CASE OF DOUBLE RESECTION FOR THE CORRECTION OF PROTRUSION OF THE LOWER JAW.

BY VILRAY PAPIN BLAIR, M. D., St. Louis.

The operation was done December the nineteenth, 1897. In this report I will not go into any detailed consideration of these cases as a class as I intend, at an early date, to publish my observations on deformities resulting from developmental mal-relations of the jaws, giving an outline description of the pathological anatomy and of various operations devised for the correction of the different conditions. The operation on this particular case has been reported, quoted, or commented upon at length about twenty times in dental literature and text books that I know of and I believe a true report of the case and the circumstances under which it was performed, will make a fitting preface to the papers to follow:

The subject of this operation was at the time 22 years of age, of good personal and family history, apparently inclined to be serious and diffident. These traits, I believe, could be partially traced to the facial deformity.

Some time between puberty and twenty-one years a bilateral growth had occurred in length of the horizontal ramus of the mandibula, in one place on each side; that on the left side was between the first and second bicuspid, with a space of one-fourth inch between the crowns; that on the right was between the bicuspid and the molar, and was not as great. There was no special separation between the other teeth. The third inferior molar articulated squarely with the first superior molar, showing that the mental protrusion was not entirely due to the growth but that the whole of the tooth-bearing portion of the lower jaw was in mesial occlusion. There was also a marked lingual inclination of the incisors, the direct result of pressure of the orbicularis oris upon these very prominent teeth. This, together with the angling at the site of the abnormal interdental spaces produced an obliquity of the chin so that while the inferior incisors were but one-fourth inch in front of the superior incisors, the inferior mental border protruded much farther. The cutting edges of the incisors overlapped fully one-eighth inch.

The object to be obtained here was both to shorten the horizontal ramus and to change the mental angle. The question was, how could this be done? When the patient came to me he was, upon the advice of Dr. J. W. Whipple, D. D. S., wearing an apparatus of Dr. Angle's, but not with the latter's sanction, which, for a certain number of hours each day, produced backward pressure upon the mental portion of the mandibula. While this apparatus has proved eminently satisfactory in cases of the very young, it was not efficient when applied to hard, mature bone. He did not mention what other measures had been proposed.

The natural solution was, if too long, remove a portion.

The questions that presented themselves were, could it be cut out satisfactorily? and if it was done, would the structures in the anterior portion of the jaw suffer from division of the inferior dental nerve? and could the growth recur? were disposed of as follows: Upon the first question I satisfied myself by experiments upon cadavers, the second by analogy, and the third by the fact that at his age bony growth should be complete.

Dr. Gregory and Dr. Tupper both concurred in my reasoning. With these opinions, on account of the disfigurement, the difficulty in eating due to lack of function of the incisor teeth, and especially of the very imperfect enunciation, the patient decided to permit the attempt to be made.

Under chloroform anesthesia the patient's head was drawn over the end of the table till the shoulders rested on the edge. The head was thrown back and the mouth drawn open and both head and jaw held by hands. For the bone cuts I had devised a double-bladed saw, the

blades of which could be separated and fixed at any desired distance from each other, the hollow being ground so as not to bind in the bone, and probe ended. The skin on the under surface of the chin, at a point corresponding to the intended bone cuts, was drawn slightly up on the face and an incision five-eighths of an inch long was made along the outer inferior edge of the horizontal ramus. This incision was extended up into the mouth, passing along the outer surface of the horizontal ramus and cutting the mucous membrane at the bottom of the buccal alveolar cul-de-sac. The result of this skin drawing was that when released the wound slipped back under the chin, rendering the scars almost invisible.

The double-bladed saw was passed through this incision and the bone, its mucous and submucous coverings were cut through. When the first double cut extended three-fourths of the way through, a similar incision was made on the opposite side, and corresponding cuts of similar depth were made in the bone. With a rapid mechanical drill, holes for wiring were made through the inferior border of the bone, the saw was replaced and the sections completed. The mental portion of the mandibula was now perfectly movable, and a copper wire was placed through the drill holes and the bones drawn together. This procedure when properly performed corrects lateral as well as forward protrusion. The teeth contiguous to the cuts were wired together as the upper fixation. Now this did not, nor had it been anticipated that it would, make the newly constructed arch perfectly steady. It was intended to use the maxilla as a splint for the new mandibula. Owing to the peculiar elongation of the mental portion of the mandibula and of the incisor teeth, it was found, after changing the angle of the chin and bringing the incisors to a proper position as indicated by facial outline, that the teeth behind the cuts were separated from those above by distances varying from almost nothing posteriorly, to one-fourth of an inch anteriorly. This had been foreseen and the space was filled with softened gutta percha upon which the jaws were enclosed, it being allowed to harden in situ. This made a perfect splint and when the lower teeth were firmly wired to the upper in appropriate places, the lower jaw was immovable. This way of fixing the lower jaw was suggested to my mind by seeing Angle's fracture bands. The patient in these cases is fed by fluid drawn through the teeth.

Had it not been for an unfortunate accident I am sure that this is all that would have been required and that union would have occurred within from three to four weeks. Though precautions had been taken to prevent the accident, the patient, several hours after having come from under the anesthetic, vomited a quantity of food which necessitated the cutting of the wires that bound the lower jaw to the upper jaw. Then

the serious mistake was made of replacing these wires with a Barton's bandage of plaster of Paris.

His stay in the hospital was uneventful. He was nourished with liquids and the clinical chart, which is on file at the Missouri Baptist Sanitarium, shows that he was anesthetized at 9:20 A. M. and returned to his room at 10:30 A. M., giving one hour and ten minutes for the anesthetic and the completion of the operation. There is no record of his having suffered pain, nor that he received either an opiate or a sedative at any time. Twice his temperature reached 101.2, but most of the time it was normal. The recovery was uninterrupted until the occurrence of the second accident which I shall detail later.

I am sorry that before making his original report of this case, which appeared in the *Dental Cosmos* in July, 1898, while I was not in this country, Dr. Whipple did not consult some one who was present at the operation, as it would not have detracted from the interest nor the accuracy of his report. Personally I had never had the pleasure of meeting Dr. Whipple, until I went to his office a few days before to invite him to be present at the operation. I regret that he was not there when the operation was performed. Dr. Whipple's statement that the means adopted for holding the superior borders of the dissevered "maxilla" in position had proved entirely insufficient and that the parts had failed to unite on either side, is untrue.

I wished to discard the plaster bandage on account of the mental worry it caused the patient. Upon its removal there was apparently bony union on the right side, and a very slight but perceptible motion on the left when the fragments were grasped. It was my idea that two dental bands with a bar between them crossing the weak place would give sufficient support to allow him to go without other protection. I went with him to Dr. Whipple, whom I requested to do this for me.

This was the first time I consulted Dr. Whipple in the case. The bands were placed upon the teeth contiguous to the weak section and through rings on the outer side of these bands a bar was placed, which had on it a continuous thread to carry the nuts that held it in place. In drawing open these nuts, the force caused a separation and there was union on neither side. Dr. Whipple broke the union of the provisional callus. I said nothing but the patient mentioned the fact as he left the office.

The plaster was re-applied and Dr. Whipple applied properly adjusted buckles and after several weeks the union was again effected, the strength of which we tested when the patient was under chloroform a second time with the idea of again resecting the jaw if the union was fibrous.

Dr. Whipple also crowned the lower teeth posterior of the cut so that

they would occlude the upper, and filed some points to improve the occlusion of the incisors.

I crave pardon for this digression, but the article referred to is somewhat misleading.

In this case the bone sections were made at the site of the abnormal growths. That on the left being broadest, which was situated between the bicuspid, was taken as a gauge and a section nine thirty-seconds of an inch was removed from each side. On the right the space between the bicuspid and the molar was not as great and the second bicuspid was removed. There was a shooting forward of the whole jaw besides, and the amount removed was not sufficient to entirely correct the deformity. You will still perceive some lateral projection. Besides this the only abnormality he now has is the almost complete loss of cutaneous sensation in the lower lip, the area supplied by the inferior dental



FIG. 1.

FIG. 2.

FIG. 3.

nerve through the mental foramen. The sensation of the tooth pulp is good.

Figure 1 is a cast of patient's jaws before the operation. Figure 2 shows the present condition with the molars capped with the gold crowns. Figure 3 shows what this condition would be with proper orthodontic treatment; here the gold crowns have been removed, the inferior incisors shortened and the superior incisors moved forward to a proper position. This, of course, was done in the cast, but it would be perfectly practical and should be done on the patient, and would have been done had I at that time a sufficient knowledge of the possibilities of orthodontic operations. It could still be done and would give a better result than the method proposed in the same case by Dr. Angle in a friendly commentary on my operation in a previous issue of the *Cosmos*, as it would produce a more nearly ideal facial outline.

These casts express the difference in our ideas as to the treatment of these cases, Dr. Angle maintaining that the primary operation should

aim at establishing directly, as nearly as possible, ideal occlusion; while I believe that the result of the primary operation should be to render practical the orthodontic operations on the teeth in both jaws to best conserve both occlusion and facial outline. This is not an ideal result, but as far as I know it is the first operation of its kind ever performed.

I thought the operation of little moment when I did it, but it seemed to attract so much attention that I was lead to go deeply into the subject of facial deformities resulting from mal-relations of the jaw bones and to me the result has been most interesting.

WHEN SHOULD WE OPERATE IN APPENDICITIS?

BY ROLAND HILL, M. D., C. M., St. Louis, Mo.

In attempting to discuss the periods of time when operation may be most safely performed in appendicitis, I realize that I am treading upon a battleground that has been the scene of some of the most bitter discussions ever waged among men prominent in the medical field.

Disease of the vermiform appendix has at times been spoken of by different observers for many decades, and abscesses of the right inguinal region have been mentioned ever since the Christian Era. While disease of the appendix was recognized and described by different observers in the first half of the nineteenth century, it was not until after the brilliant work of Lister had rendered comparatively safe operations within the abdominal cavity that surgery became an important factor in dealing with diseases of this organ.

The first definitely planned and executed operation for appendicitis is generally credited with having been made by the New York surgeon, McBurney, on May 28th, 1888. Whether or not priority in perfecting this operation belongs to McBurney, it is an undoubted fact that his influence was a great factor in establishing appendix operations as rational and justifiable surgical measures.

When surgeons first entered the appendiceal field, with imperfect technique and a poor idea of the laws governing abdominal surgery, the results were appalling. It is true they found pathological conditions, and pointed out these as proof that they were right in operative intervention, but often the old and careful physicians, who had relied on nature, rest and opium, were able to show a mortality rate infinitely better than that of the radical surgeon.

Surgery of the appendix passed through several more or less defined stages before it reached the advanced plane of perfection on which we find it today. In the early period of operative work on the appendix it was a common practice to eviscerate, clean, lymph off the

intestines, and thoroughly wash out the abdominal cavity, and fortunate, indeed, was the patient who recovered after such manipulation. Then, great masses of gauze drains were put in different parts of the cavity, which acted as irritants, and frequently led to strong, annoying and often dangerous adhesions. Very often these gauze drains were charged heavily with such poisons as iodoform and bichloride of mercury, and many deaths have been attributed to their use, especially to that of iodoform.

In fact, during this period of evolution of appendiceal surgery, it is a great question if more lives were not saved by the country doctor, his opium and flaxseed poultices, than by the surgical expert and his knife. With, however, a more extended knowledge of diseases of the appendix, an increase in perfection of surgical technique, and a more thorough realization of the resisting power of the peritoneum, came a decided decrease in the mortality rate following operations upon the appendix.

As typical of the changes that have taken place, I cannot do better than to quote from an excellent paper by Lucius Hotchkiss, surgeon to one of the New York hospitals. In his service from 1895 to 1898, there were operated upon forty-two cases of appendicitis, with thirteen deaths, a mortality of 31 per cent, and from 1899 to 1902, there were operated upon seventy-two cases without the loss of a single case.

The class of cases in the one series on analysis is found to be the same as that in the other, and operation was done in every case with a view solely to the relief of the patient, and not with reference to mortality rate. In the last series were twenty-six gangrenous appendices, with or without perforation, and fifteen gangrenous appendices with advancing peritonitis. He ascribes the changes in mortality rate to improvements in technique, as he feels that formerly too much traumatism was inflicted, and too little attention paid to the natural powers of the peritoneum.

When Robt. T. Morris was able to report one hundred operations on the appendix, with a mortality of 2 per cent, he states that there was a marked reduction in his practice, as the profession did not at first believe the truthfulness of his assertions.

One great factor in reducing the mortality in appendicitis is a more perfect knowledge of the periods at which the operations can be done with the least risk to the patient. There is a time in every case when the life of the patient can be saved, and Finney has made the apt assertion that "the presence of pus shows that some one has erred; the patient, the physician, or the surgeon."

Kelly and Hurdon, in their magnificent work, have made the nominal classification of operations upon the appendix according to the stage of the disease in which they are performed, as:

1. Early operation performed at the outset.
2. Intermediate operation, performed from the second to the fifth day.
3. Late operation, performed after sufficient time has elapsed for the formation of an abscess.
4. Interval operations, performed between the attacks.

In 1890, Dr. Robt. T. Morris made the assertion, "Operate as soon as the diagnosis is made," and he says further experience has led him back to the same rule.

In regard to an operation in the early hours of a first attack, it has the advantage that the mortality will not be over 1 per cent. If the disease is limited to the appendix, i. e., if one of those rapidly fulminating general streptococcus infections has not taken place, the mortality in the hands of a careful surgeon should be a good deal less than one per cent. Finney recently told me that in nearly one thousand operations he had not lost a single case in which pus was not present.

Right here I may add another of Morris's truisms, when he says "in cases of acute appendicitis that are out of the reach of a competent surgeon, the patient is much better under the ice, opium and starvation treatment than he would be under the kindest hands that ever attempted to render untrained surgical services."

Murphy states that during the first forty-eight hours is the period of election, and that operation during this period is very little more serious than an exploratory laparotomy. This certainly is true, although we know in some virulent cases most dangerous changes may occur well inside of that period. No one knows at the outset how serious an apparently mild case will prove, and to attempt to diagnose one as catarrhal and free from danger, and another as of the serious type, is an absolute impossibility. It is possible to have an appendix practically normal throughout, excepting over a concretion, where it may be gangrenous. This occurred in one of my cases several years ago.

The case was one belonging to another doctor, and was a second attack. Inside the appendix was a concretion like a 38 calibre bullet, and here a small perforation had taken place. The abdomen was distended with pus, the intestines inflamed, the temperature 104, and pulse 140, but the system was still resisting. The patient died after the usual operation of removing appendix, thorough washing out of cavity, and putting in numerous gauze drains. Under modern treatment she would probably have lived.

Right here I wish to enter a protest against patients very ill with appendicitis being rushed to a hospital a long distance away for operation. I am sure the practice has been harmful. If he can be removed to a hospital in the first forty-eight hours it will be an ad-

vantage, but after that time, if symptoms are increasing, he is better operated upon at home.

Regarding operation at the outset, Joseph Price remarks "there is but one treatment of appendicitis: early, clean removal of the appendix."

Dr. Ochsner, who is known widely for urging delay in certain cases of appendicitis, is an urgent advocate of early operation in all acute cases in which we would be reasonably certain that the infectious material is still limited to the appendix. He reasons:

1. That there is almost no mortality in these cases if operated upon by a competent surgeon.
2. The patient will be permanently cured.
3. He will be disabled from work but a very short time.
4. His suffering is reduced to a minimum.
5. Drainage will not be necessary and hence there will be no post-operative hernia.
6. All the other complications of acute appendicitis will be avoided, e. g., peritonitis, metastatic infection, adhesions, fecal fistula, thrombophlebitis, secondary infection of the pelvic organs in female, and sterility.

In 337 cases, Ochsner had seven deaths, or 2 per cent. Of the entire number 142 were acute, with six deaths, or 3 per cent. There were 145 chronic cases, with one death.

Considering the very low mortality rate now following operation at the outset of acute cases, and the great risk of delay, the uncertainty regarding future attacks, the danger of invalidism if the patient lives, there can be but one opinion to the student of the subject, and that is that the number of deaths from this disease would be greatly reduced if all cases were operated on at the outset. In this respect, I entirely agree with that excellent St. Louis surgeon, Harvey G. Mudd, who but recently told me that he had never seen but one appendix come out too early. How many have we all seen removed too late!

A consideration of the intermediate operation during the height of an acute attack brings us to the period at which a certain number of cases will die, whether treated by medical or surgical means. In many of these cases the infection remains limited to the appendix, and operation is no more dangerous than during the first few hours of the attack, but it is in this stage, particularly, that we are so likely to find gangrene, perforations and general peritonitis. The pus found at this stage is particularly infectious, and operative measures, unless very carefully conducted, may easily spread the infection, a source, undoubtedly, of many deaths following operation at this time. The vitality of the patient is usually low, and prolonged manipulation has often been the cause of fatal trouble. In this class of cases the surgical profession

is divided into those who favor operating at once, as Murphy and Deaver, and those like Ochsner, who believe that many of these cases do better under rest, starvation and rectal feeding than they do under operation.

In general, it may be said that a sudden, decided acceleration of the pulse rate is usually considered a symptom demanding immediate operation. This sudden acceleration of the pulse I have seen repeatedly where the parts were becoming gangrenous. Maurice H. Richardson says to operate if pain is increasing.

Should persistent ileus develop during an attack, it often demands the most prompt surgical intervention. A sudden cessation of severe pain should be looked upon with suspicion, as it frequently means a gangrene of the part.

A great advance was made in the treatment of these cases when Murphy first reported to the American Medical Association a record of sixteen cases of general peritonitis, with fifteen recoveries. His paper at the time was received with incredulity, but his methods are now employed by our best men. In cases where there is general peritonitis, distension, rapid pulse, etc., but where the system is still resisting, he places a large glass drainage tube in the pelvis, and elevates the patient to an angle of from 35 to 45 degrees after the method of Fowler, so that all purulent matter will gravitate to the area drained by the tube. He lets the patient's condition determine whether or not the appendix should be removed at the time.

In these acute cases, however, I believe that there are attacks in which the most radical man will hesitate, and I think the average surgeon is very apt to delay, especially if the symptoms are at a standstill, or show signs of abatement.

In regard to late operations performed when an abscess has developed, it may be stated that any case with a well marked collection of pus should be submitted to operation. Quite a number of surgeons advise in these cases the breaking of adhesions, and removal of the appendix in every case. This procedure is certainly very radical, and it is a great question if as good results can be obtained by this radical work as by draining and only removing the appendix if freely accessible, in fact treating the case just like one of ordinary abscess formation. It is true, appendiceal attacks do occur after the healing of some of these abscesses, and require removal of the appendix at a subsequent operation. Such recurrences, however, are infrequent, and if the abscess is walled off, I am certainly in favor of simple drainage unless the appendix is easily accessible.

The question of interval operation, or operation between the attacks, is one that seems to be pretty definitely settled. The best medical statistics we have, show that in a large series of cases treated without operation, there is a recurrence of the attacks in over 20 per cent of

the patients. We know, also, that many of these patients, who have had mild attacks, may, after years of trouble, develop gangrene, abscesses and peritonitis, with their serious attendant sequellæ. The best surgical statistics today show that the mortality in these cases, if treated surgically is a good deal less than one per cent. In the hands of some of our able surgeons hundreds of cases have been treated without a death.

Thus, Murphy reports between 1,300 and 1,400 cases of interval operation, with one death. Sir Frederick Treves reports 1,000 cases, with two deaths, and Dr. James Moore, of the University of Minnesota, told me he had operated upon more than 1,000 interval cases without a death.

Thus, surgery offers you absolute cure in 99 cases out of 100, while medicine offers but uncertainty of cure, a primary mortality of about 10 per cent, and in many cases a state of chronic invalidism. A man who has had one attack of appendicitis is living, practically, with a charge of dynamite in his abdomen, that may explode at any moment and destroy his life.

The interval operation is best performed several weeks after the patient has recovered from a severe attack, as any pus focus that may be present will have its virulence very greatly lessened in that length of time, and the spreading of infection is not so likely to occur.

To recapitulate, then, I would say in closing, all cases of appendicitis, whether symptoms be mild or severe, should be operated upon in the early hours of a first attack, as by this means we avoid all subsequent complications and save more lives than by any other treatment of this grave disease. Cases with well marked abscess formation should be submitted to operation. Interval operations should always be done where the patient has recovered from one or more definite attacks of appendicitis. Cases that are in the acute stage, and after forty-eight hours are passed, should, as a rule, be submitted to operation, but a certain number of these do better if left alone, and I think the great majority of surgeons hesitate before urging operative intervention in many of these acute conditions. If, however, general peritonitis has developed, operation should be immediately performed, and a large drainage tube inserted into the pelvis, after the plan recommended by Murphy, as by this means we will save a majority of these formerly hopeless cases.

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URETHROTOMY FOR RUPTURED URETHRA.

BY REGINALD HARRISON, F. R. C. S.

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This operation may be required for rupture of the male urethra, occurring either without, or with, fracture of the pubic arch of the pelvis. I will first deal with the former variety.

Either partial or complete rupture of the urethra is an injury of a serious nature as it exposes the patient to risks arising out of sudden retention of urine where catheterism is sure to be difficult if not impossible, and further it lays him open to the likelihood of a permanent stricture of the worst and most unmanageable form.

The lesion is usually occasioned by blows on the perineum, by falling astraddle from a height, or by any violence applied over the line of the urethra. It is usually indicated by the discharge of blood from the urethra following one of the injuries mentioned. Its commoner position is in the deep urethra.

The nature of the lesion is generally apparent to the touch by the examination of the urethra with a bougie or catheter which should always be made.

In this way these cases may be divided into two classes, viz., those where the instrument can be passed into the bladder and where this is not found possible.

Important as this distinction may be for the sake of surgical accuracy I am by no means sure that it need make much difference in the treatment that should be adopted in those instances where the evidence is unequivocal that a distinct tear or laceration of the urethra has occurred.

Persons will bleed from the urethra from contusions alone, but these are not likely to be mistaken for those lesions where the more serious injury has happened.

It is now a few years ago since I made some observations, when lecturing on this subject, which arose out of a considerable number of cases of ruptured urethra that had been under treatment. The practice at the time I am speaking of, entirely turned on the point as to whether or not a catheter could be passed into the bladder.

In the former case the instrument was tied in for some days and then removed and the wound left to heal in this undrained septic fashion; whilst in the latter the urethra was opened at the point of lesion and the bladder drained from the perineum. There was no doubt in my mind that the urethral lesion, whether small or large, was best treated in this way.

Where the catheter was tied and retained, many cases died of sepsis

whilst in others the stricture that followed the healing of these wounds was invariably, as I have before stated, of the worst kind.

Hence it came to pass that those cases of rupture of the deep urethra where no catheter could be passed into the bladder by fair means and where a perineal section for bladder drainage was a necessity, as a rule, did far better immediately and remotely than those where the temptation was offered and accepted of treating the lesion by a retained catheter. I several times regretted the latter course but never the former.

The kind of lesion that follows the violence applied to the perineum sufficient to partially or completely rupture a tube so fairly well protected as the deep urethra, is rarely clean-cut, but is generally much contused. The urethra is not unfrequently more or less separated from its connections and in this way ecchymosis may readily spread upwards to the neck of the bladder and even into the space of Retzius. Such wounds are extremely liable to become septic and if the liability is added to by the retention of a catheter a dense cicatricial stricture, not unfrequently of some length, is quite unavoidable.

On the other hand where a catheter cannot be passed after the infliction of the lesion and a perineal section is provided sepsis is unlikely, and the damaged part is assimilated to that of a median cystotomy with drainage where repair takes place without any contraction or stricture following.

In something like two hundred and fifty median and lateral lithotomies I have performed on males at all ages I cannot remember one instance where stricture of the urethra followed. On these grounds I have for many years advocated perineal section and drainage in all forms and degrees of rupture of the deep urethra.

The suturing of lesions of the urethra after exposure by perineal incision, even when successful as in some recorded instances presents no advantage over simple incision and urine drainage.

In reference to the operation for exposing the ruptured portion of the urethra I have nothing to add to what applies to the external urethrotomy for impassable stricture.

If on exposing the ruptured portion of the canal it is found completely torn across, as seldom happens, the bladder side of the urethra can generally be discovered for the purpose of introducing a drainage tube by exercising suprapubic pressure with the hand when the wound is opened by retractors. The escape of urine will then indicate its position.

When the urethra has been completely torn across as seen by a perineal section I have never taken any special steps to keep the separated portions on the same level during the healing process. I have found nature accomplishes this.

The second variety of rupture of the deep urethra is that which not infrequently complicates fracture of the pubic arch of the pelvis. Here the canal may either be partially or completely torn across by the sharp edge of the displaced fractured ramus of the pubes. In this way I have seen the urethra cut across or punctured as if done by a sharp knife.

This accident may be occasioned in various ways by which the circle of the pelvis is submitted to severe crushes and so gives away at one of the weaker spots in its continuity. Several times I have known it to happen in the hunting field, in steeple-chasing and in accidents of this kind where the horse rolls over his unfortunate rider. In crushes, as against walls by a moving cart where the pelvis of the individual is suddenly and violently compressed. In these and other similar ways the lesion may be inflicted.

In all such instances the surgeon should be careful on first seeing the patient to satisfy himself that the urinary apparatus has escaped injury. Retention of urine following such-like injuries should excite suspicion. Especially is care to be taken in reference to this point where persons remain insensible, or were insensible, after or at the time of the accident.

Amongst the worst cases of this kind was one I saw where this discovery was not made till the third day after the pelvis had been broken by a fall from a cart and the urethra ruptured. I opened the latter from the perineum and put a drainage tube into the bladder, letting out an enormous collection of putrid urine and decomposing blood clots. The patient made a good recovery and no stricture followed. Two years have elapsed since this happened. This course is advised in all such cases where the deep urethra is ruptured by a fractured pelvis.

It must be remembered that retention of urine sometimes occurs in connection with fractures of the pubic arch by the urethra being pressed upon by the displaced bone or by clots the latter has caused.

This may be suspected when after the injury any urine that may be passed remains clear of blood and there is no evidence of bleeding connected with the urethra or the catheter that is used for examination. In these cases the use of the catheter that is used from time to time, or a tied-in catheter will probably suffice. It is an important distinction to draw in this class of cases between the retention due to rupture of the urethra complicating the fracture and that arising merely from lateral compression of the canal.

Many cases of fractured pelvis have been lost by not recognizing that the urethra has also been ruptured and delay has thus occurred in providing a free escape for the urine in the manner described.

Ruptures of the pendulous portion of the male urethra are of much rarer occurrence than the preceding. They are generally the result of some form of direct violence. In my own experience the commoner illustrations were connected with lesions inflicted on the penis by hooks

attached to cranes and such like implements used in the loading and unloading of heavy goods. These forms of ruptured urethra are very liable to slough and to leave behind one or more urinary fistulæ which are often difficult to heal. A plastic operation for the restoration of the canal may then be necessary.

ANGIOMA OF THE UPPER LID: OPERATION.

By J. W. CHARLES, M. D., St. Louis, Mo.

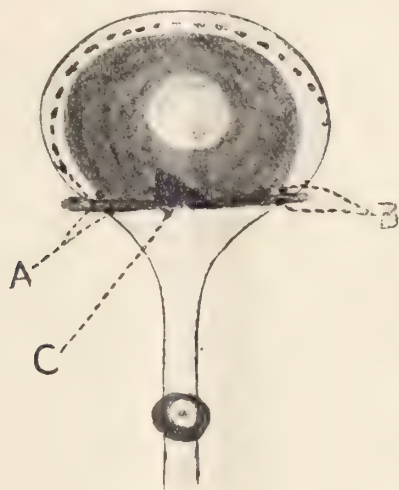
One June 14th, 1905, M. H., an infant of four months, was brought to me with the history of a slightly prominent blue discoloration near the lower margin of the upper lid of the right eye. This was first noticed by the mother when the baby was three weeks old. On June 11th, the swelling had increased to such an extent that the child could no longer open the eye.

Present Condition: A small triangular nævus is situated at the lower margin of the upper lid of the right eye, extending 2 mm. upward into the conjunctiva, 3 mm. upward into the skin of the lid and 4 or 5 mm. along the lid margin. Under this nævus and extending beyond its limits in all directions is a large diffuse blue swelling, occupying almost the entire area of the lid. It is not distinctly circumscribed and not very tense. It is most plainly visible through the skin at the centre and seems gradually to disappear into the depths of the areolar tissue of the lid and orbit. In view of the rapid development of the swelling, I thought at once of hematoma and instructed the mother to return with the patient if the hemorrhage did not disappear within two weeks.

At the next visit, July 11th, the patient's mother stated that during the two weeks following the examination, the lump had apparently become smaller and then had suddenly grown larger than it had ever been. The lid was much less tense and the tumor was more plainly defined at the centre of the lid. No dilated vessels could be seen supplying it. The patient was referred to Dr. M. F. Engman, who returned a diagnosis of "angioma within the lid" and advised operative removal. The swelling was now so great that I feared its origin was within the orbit and that I should have great difficulty in reaching its blood supply.

On July 19th, I operated at the Protestant Hospital, with the assistance of Drs. Engman and Montague. The child was now almost six months old and weighed twenty-five pounds. Under chloroform anesthesia, a Desmarre's clamp, the solid plate of which had been filed down to fit the lid, was applied and a skin incision made along the

inner edge of its ring temporally almost to the lid margin, but terminating nasally at the middle point of its vertical axis. In dissecting out the growth I found that the skin near the lid margin was firmly adherent to the tumor. This condition necessitated the sacrifice of some lash-bearing skin at the centre of the lid margin. Fortunately the only vessels supplying the cyst were situated at the outer and inner ends of the lid. The vessel supplying the tumor temporally was ligated and divided, the freed end was seized with forceps and the cyst readily dissected from the tarsus. At the nasal extremity an equally large



A, B. Ligatures of supplying vessels.

C. Position of naevus at the lid margin. Dotted line represents the line of incision.

vessel was ligated and divided. The skin flap which, in reality, was an arched bridge, was sewn in position by numerous fine sutures above and below. Healing was rapid and uneventful. The patient was permitted to leave the hospital in two days and the stitches were removed in five days. The disfigurement was very slight.

1906, February 6th—The patient can now open and close the eye without difficulty and the deformity is so slight as not to be noticeable when the eye is open. The lashes are normally placed except, of course, where they are absent at the center. The mother states that the part of the lid formerly occupied by the tumor cyst still becomes blue and swollen when the child cries. I had the opportunity of investigating this point at the office and found that only the small area of the naevus became blue and there was no swelling.

Risley (*Ophthalmic Record*, March, 1906) describes an operation for an enormous cavernous angioma of the lower eyelid which proved successful so far as a return of the disease was concerned, but which

left some deformity. In this case the outer three-fourths of the right lower eyelid was occupied by a growth $2\frac{1}{2}$ cm. long, 2 cm. high and $1\frac{1}{2}$ cm. deep. He feared the results of the ordinary coagulation measures and resorted to electrolysis, under which the mass became hard and shrank at the centre, but its periphery continued to spread. He thus describes the procedure which he then adopted: "A large curved needle with an ample eye was threaded with one black and one white, heavy silk thread, a yard long. Beginning at the nasal extremity of the tumor the suture was carried vertically upward through it, being careful to include the mass down to the surface of the lid cartilage, but not including it. Then reversing the procedure the thread was carried through the mass downward at a point 5 mm. from the first, and so back and forth until the entire tumor was enclosed in a series of loops, above and below. The extremities of the loops of white thread were then cut above, leaving them intact below. They were then drawn tightly home and tied, in this manner effecting a complete strangulation of the entire mass which sloughed off in about a week without hemorrhage, leaving a granulation mass at each extremity. These were also removed by strangulation with a silk thread, after which the surface cicatrized rapidly, manifesting but little tendency to cause ectropion."

I was well satisfied with the more simple operation. I used Desmarre's clamp because it controlled the hemorrhage absolutely. There has been very little formation of scar tissue and consequently no ectropion or entropion. It seems evident, however, that the tumor in Risley's case was larger than in mine.

EDITORIAL.

PASSIVE TOLERATION OF DANGEROUS FALLACIES.

A noted circus man once stated a certain characteristic of the American people in a phrase that has since become a truism. As a people, however, we do not admit that we differ greatly from the rest of humanity on this score, and we gain a certain satisfaction in observing the progress made in other countries by humbugs that have succeeded well with us. Thus we notice with a feeling of satisfaction akin to that which comes with the opportunity to say, "I told you so," that certain English men and women—in some instances of rank and title—have come to this country to take a hand in a recent congress of christian scientists. Another indication of how widespread has become the mental infection known as christian science in England comes with the news that a medical practitioner has so far forgotten his teachings as to become a practitioner of christian science. The case of R. v. Adcock, recently commented upon in the *British Medical Journal*, is interesting from the view point of medicine, of law and of common humanity. Adcock, it seems, was not satisfied with being a christian scientist himself, and of thus meeting his religious needs and preserving his physical welfare, but he must needs extend this form of treatment to certain of his patients. The case in point was badly selected. The patient, suffering from a deep abscess of the buttock and thigh, giving rise to symptoms of general septicemia, did not respond to the "denial" instituted by Adcock, after the manner of Mrs. Eddy, but promptly died. As a consequence, the erstwhile medical man was prosecuted on a charge of criminal negligence. On examination, he stated his belief to be that snake bite and opium poisoning may certainly be cured by a belief in the doctrines of Mrs. Eddy, but was not sufficiently versed in his new faith to answer the pertinent question put by the justice, when he asked, "Why then do christian scientists ever die?"

As has been previously stated in this JOURNAL, christian science, utterly ignoring the fact that disease is a positive natural phenomenon, attempts to supply the grossest and most patently ridiculous metaphysical fallacies as a substitute for rational therapeutic measures. This fact in itself, easily grasped as it is by any rational mind, is a sufficient answer to any controversy; indeed, is a prophecy of the dissolution of this ephemeral sect. We deem it idle to argue with those who hold that christian science is an all-powerful means of cure.

From a medico-legal standpoint, it is necessary to strip the case of R. v. Adcock as free from christian science as possible. That this is diffi-

cult to do, a moment's consideration will show. During the trial, in fact, it was several times necessary for the justice to state that Adcock was being tried for criminal negligence, not his belief in christian science, nor the merits of that faith. The question at issue was, did the accused attend his unfortunate patient as a medical man, or did he attend him as a christian science healer? This raised the confusing question, inasmuch as Adcock was a registered medical practitioner, and received regular remuneration for his attendance upon the deceased: "Whether it is in itself not sufficient evidence of negligence for a trained medical man to resort to the so-called treatment of christian science." It then remained to be proved, granting this point, that such negligence had hastened the death of the patient. Considering the tangle of facts developed during this hearing, as well as the bitter and extravagant attack made by the counsel for the defense upon the various members of the profession who were called for the prosecution, it is no wonder the jury disagreed, and the accused was acquitted.

Despite this verdict, which at first sight may seem a triumph for christian science, we are convinced that the moral culpability of the accused is evident to any right-thinking person. A physician, trained as the majority of physicians are today, who allows himself to be influenced by the insidious teachings of some unscientific pseudo-christian cult, deserves both censure and punishment. We agree with Sir Victor Horsley, who was called as a witness for the prosecution in this case, that there is a moral responsibility placed on a medical man to use every means in his power to cure his patient and we believe also that this sense of imperative duty is of the highest importance, both to the individual patient and public welfare. It is therefore incumbent upon the physician to keep his mind clear of fads, delusions and beliefs which may color his opinion in a question of diagnosis. Following this line of thought, it seems to us necessary that medical men cease to regard dangerous fallacies, such as christian science, with passive toleration; for it is clear to our mind that any system of thought based upon a fundamental error is dangerous, in that it tends to hold the mental powers of its deluded followers in abeyance. As medical men, endowed with the ability to discriminate that which is true from that which is false, we should make it a point, even though we might be in doubt as to a diagnosis and discouraged as to the results of rational treatment, never to allow ourselves to become biased by the teachings of some unscientific, quasi-religious sect; above all, not to compromise our mental attitude by stating, or even tacitly agreeing to the statement, that there must be something of therapeutic value in christian science, because certain impressionable individuals, fired by the enthusiasm of delusion, have reported "cures."

COMMENT.

BARON LARREY.

That Baron Larrey was a great military surgeon; that he had a sense of honor worthy of Napoleon's highest encomium; that he lived at a time when opportunities for the perfection of his specialty were unusual and could hardly be repeated today, are facts interestingly set forth by Dr. Chalmers da Costa in a paper read before the Johns Hopkins Historical Club February 12, 1906, and published in the July number of the *Bulletin of Johns Hopkins Hospital*.

Larrey lived in stormy times; he saw great upheavals. When he took his examination and received his appointment as surgeon of the navy, a vacillating king was on the throne; the corruption of centuries abetted by Louis XV, the Well Beloved, had not been stamped out and harbingers of the revolution were in the air. Larrey directly he left the medical school went into active service; first as surgeon of the Vigilante, then as surgeon with the Army of the Rhine, where he was impressed with the necessity of improving the ambulance service and later on as Chief Surgeon with the Army of Italy under Napoleon. He saw the great battles of Wagram and Austerlitz, he knew intimately the Marshals of France, but the genius who inspired him beyond all others was Napoleon. Larrey's powers of observation, his originality, audacity and probity commanded attention and won him the respect of the leading men in military and scientific circles. Not only on the battlefield (twenty-six campaigns are placed to his credit) was his work of the first order, but he proved an efficient teacher of theoretical and clinical surgery in schools specially organized by himself for the surgeons of the army. Modern surgery is indebted to him for the belief in the superiority of immediate amputation over the secondary operation; the belief in the imperative necessity for drainage of large wounds; the use of conservative operation for resection of joints; trephining for the meningeal artery and the recognition of discoloration over the mastoid process as the result of fracture of the base; and trephining for depressed fracture or any condition that causes compression of the brain.

These are but a few of the important observations made by this original surgeon. Although his contemporaries, Dubois, the surgeon, and Corvisart, the authority on the heart, achieved equal fame with him, their theories are too antiquated for our modern ideas. True Larrey had advantages denied the others, his active service on the battlefield bringing him in touch with the imperative demands for improving the surgical methods then in vogue. But without his acumen, his daring, his indefatigability, these demands would not have been satisfied. "The most virtuous man I have ever known," said Napoleon, the same Napoleon who has characterized Dubois "a stupid ass" and Corvisart "a miserable ingrate" in a book recently published in Paris, *The Journal of Sainte Helene* by General Baron Gourgaud.

CORRESPONDENCE.

Editor Interstate Medical Journal:

I am just in receipt of a note from Professor Doctor Rene du Bois-Reymond, of Berlin University, conveying interesting suggestions as to the use of trained dogs in connection with desert expeditions; and since readers of my article on "Desert Thirst," published in the *Interstate Medical Journal*, March, 1906, may be interested in these suggestions, I am giving myself the pleasure of enclosing a transcript of his letter and duplicate of my reply.

Yours cordially,

W J MCGEE.

Berlin, July 14, 1906.

Prof. W J McGee, Director St. Louis Public Museum:

Dear Sir—This is to thank you for your most interesting paper on "Desert Thirst," which apart from the stirring incident it records had the especial claim on me, that I have had an opportunity of seeing deserts of the kind you describe in northern Chile, having gone up to a saltpeter factory by an eight-hour drive by rail through a country where even cactuses were few and far (miles and miles) between. This of course gives only a very inadequate idea of what such a desert must be to a man who faces it on foot or on horseback with only a water can or two to take him from aguaje to aguaje—but it certainly gives a more vivid picture of the scenes you describe, than a mere printed page could convey.

From the science point of view I am also much indebted to you for having published this case, which may well be regarded as an extreme example of the resisting powers of the human body. I have early remarked the fact, that the limits of endurance given in medical textbooks and the standards used by medical men to judge of amounts of exercise, fatigue, food and drink, etc., are rather at variance with the practical experiences in cases like the one you have recorded. For instance, shipwrecked men withstand immersion in cold water for a marvelous space of time—while populations subsist on food with less nitrogenous matter than is supposed to be barely sufficient, and so on. I have a kind of collection of such cases, to which I have had much pleasure to add yours.

Finally with some diffidence I would venture a suggestion that occurred to me on reading the concluding passage of your paper: You call upon the medical faculty to find means to combat the "disease: thirst," but it seems to me that in so far as thirst indicates an absolute deficiency of water in the system, the only cure must consist in apply-

ing water—and water is just the thing that cannot be had. Perhaps evaporation could be impeded to a certain degree, but that would probably interfere with the temperature of the body. So my thoughts were directed to another line of action—and if really over 30 people die of thirst on an average in that district every year, there is good reason something should be done. The idea that suggested itself to me, was that if “Jim Tucker” had been able to provide the two explorers with a couple of trained dogs, inured to desert life, and fitted with small canteens on their collars, Pablo’s sufferings would have been avoided. The dogs of St. Bernard are known all the world over for their useful work. If a desert like that of Arizona were in England, I think the Englishmen would long since have raised a particular breed of desert hounds—perhaps with some coyote-blood in their ancestry—to run on trails and supply lost wanderers with water. I cannot but fancy that if a number of settlements round the desert tracts were provided with such hounds, many of the lives annually lost, according to your account, might well be saved, and I take the liberty, from my “tenderfoot” writing table, to offer this suggestion, in case it might seem worth trying to those who know more about the nature of the case. Of course the cost and labor of a trial of this kind is out of proportion to the chances of success, but the same may be said of lighthouses and coastguard stations, that are built, kept, and paid for day by day, while they only serve now and then to prevent loss of life. But as human life has a value not to be counted in money, the trial might still seem worth while—and moreover, to a man who enjoys breeding and training dogs it would offer a fine chance of noble sport with a most noble object in view.

Yours gratefully and admiringly,

PROF. R. DUBOIS-REYMOND,
Berlin Physiol. Institut d. Universitat.

August 4, 1906.

Prof. Dr. R. duBois-Reymond, University of Berlin:

Dear Sir—It was a special pleasure to receive your note of July 14 offering most interesting suggestions relating to my discussion of “Desert Thirst.” Pray be assured that I highly appreciate so close attention to the paper on the part of one so eminently competent to speak with authority and offer useful suggestions.

Most fully do I concur in your feeling that the limits of human endurance customarily recorded in medical literature are applicable only to average men under average conditions; they fall far short of applying to men stimulated or exalted by a motive, which in some way not yet analyzed by physiologists serves to increase—indeed, to multiply—the measure of effective strength and endurance. So far as I am able to judge from observations on various races, the really effective

effort which shapes human progress is that of inspiration, i. e., intensification under powerful psychic impulse—and this, seems to be equally true whether the impulse be what you and I would deem noble or ignoble.

You are quite right, too, in your question as to the expediency of medical treatment in cases where the only need is that for water. On this point I must confess to having been less specific than would have been desirable (partly because of a misprint in the second paragraph on page 21—which may not have been corrected in the copy sent you): My idea was and is that medical men, especially on the borders of deserts, should acquaint themselves with the symptoms and most effective modes of treatment of thirst in the fourth phase, i. e., in that earlier part of the stage of structural degeneration in which especially may thirst be regarded as curable disease.

I am especially struck by your suggestion that dogs might be trained as water carriers and rescuers. The suggestion is certainly worthy of consideration and perhaps of practical test, particularly if dog-fanciers could be found in the habitable portions of our arid lands. I am bound to say, however, that both my own observations in the deserts and my habits of thought are rather adverse than favorable to the plan. Dogs, even of mixed coyote blood (and the interbreeding of our artificialized jackal-hyena stock with the widely distinct and also artificialized American coyote stock is to me one of the most impressive facts of biology), are not well adapted to desert life, in which the ground temperature is too scorching for both their feet and their lungs; while the trail-scent seems to dissipate more rapidly in deserts than in moderately humid lands—and the desert distances are generally great. These practical considerations seem to have impressed desert folk generally in this country, so that the average man in arid regions makes less use of dogs for any purpose than he would—or did—in humid lands; and in my own travels through our arid lands, including hostile Indian country, I have never attached even a single dog to the party. The dogs of Saint Bernard developed a pilage coupled with a stature and strength which rendered them superior to men in traversing mountainous snow-fields, and on this superiority a special system of training was founded; but so far as my experience goes, dogs fail to fit arid regions, and fall short of men in endurance of thirst and miles, and hence do not possess the requisite foundation for training as rescuers of men. Perhaps I am prejudiced against canines, and so err in my estimation of them; but I am none the less struck by your suggestion, which I should be exceedingly glad to see tested—and as opportunity offers I shall convey the intimation to those to whom it may be of value.

Assuring you that your courteous expressions concerning the paper as a whole are highly appreciated, I have the honor to subscribe myself, with great respect,

Yours cordially,

W J MCGEE.

MEDICAL AND SURGICAL PROGRESS.

INTERNAL MEDICINE.

IN CHARGE OF

JESSE S. MYER, M. D.

POLYCYTHEMIA WITH THE ETIOLOGY OF "OPHTHALMIC MIGRAINE."—Costa (*Muench. Medizin. Wochen.*, May 29, June 6, 1906).—Costa says regarding the 28 cases of polycythemia he found reported in the literature, the symptomatology was variable but that the characteristic blood findings, cyanosis and enlarged spleen, are constant. It is yet unknown whether the clinical picture is an entity, or a syndrome of a yet unexplained anatomical condition. He reports a case in detail and reviews the symptomatology of the cases reported in the literature with special attention to the eye-findings.

Regarding the etiology he said the early authors believed that a primary tuberculosis of the spleen causes an increased function of the bone marrow. That some of Turk's cases prove that with the affection of the spleen there was an accompanying enlargement of the liver and that in Priese's case this was present. Turk concluded that it was due to a primary affection of erythroblastic myelogenous tissue with functional and anatomical secondary changes in the spleen and liver. Zandy thought it possible that in his case there was an obstruction to the splenic vein due to a typhoid perisplenitis which caused the passive congestion of the spleen and an increase of the erythrocytes on account of the disturbance of the splenic function. Kikuchi's case of splenic tumor with emphysema and bronchiectatic cavities suggested the possibility that the irritation in case of bronchiectasis might have affected the bone marrow instead of the bones and thus produced the picture of polycythemia. He concludes that the etiology is indefinite and unclear. That it is an affection of the blood-producing organs is certain, but whether it is primary or secondary remains unknown.

VALUE OF THE BLOOD COUNT IN SEPSIS.—Sonderon (*N. Y. Med. Jour.*, June 16, 1906).—Based on the theory that the leucocyte count indicates the body resistance offered to the absorption of toxins and that the percentage of polynuclear cells indicates amount of purulent exudate, the author places the following value upon leucocytosis and the differential count in sepsis: (1) An increase in the relative proportion of the polynuclear cells (85 per cent.) and the higher the proportion the more virulent the pyogenic process; (2) the higher the leucocytosis with a given percentage of polynuclear cells the better, ordinarily, is the body resistance; (3) a slight polynuclear increase with pronounced leucocytosis indicates slight infection and marked resistance; (4) a pronounced polynuclear increase with a pronounced leucocytosis denotes severe infection and good body resistance; (5) a pronounced polynuclear increase and

slight or no leucocytosis indicates severe infection and decreased or no body resistance; (6) absence of leucocytosis in severe inflammation is a bad prognostic sign; (7) increased polynuclear percentage and stationary or decreased leucocytosis and an increasing degree of infection indicates decreasing resistance; (8) decrease in both the polynuclear percentage and leucocytosis denotes improvement. He says that careful observation in almost 2,000 surgical cases has strengthened his belief that a complete blood examination presents diagnostic and prognostic data, while the clinical picture may be confusing. He counts the following among the failures encountered in the application of these principles: (1) Pus confined by dense fibro-pyogenic membranes; (2) acute infections, as pneumonia, erysipelas, etc.; (3) secondary infections of tuberculosis, typhoid, etc.; (4) double infections, or unknown focus of absorption; (5) errors of technique.

THE ORIGIN AND NATURE OF BLOOD CORPUSCLES.—Wright (*Boston Med. and Surg. Jour.*, June 11, 1906).—Wright thinks the inference seems to be justified that blood platelets are detached portions of the cytoplasm of the giant cells. He gives the following reasons for this deduction: (1) That the relative amount of the cytoplasm of the giant cells exhibiting ameboid form and the occurrence of the degenerative-looking giant cell nuclei, having little or no cytoplasm, shows that the giant cells do lose their cytoplasm; (2) that this takes place in only a small proportion of the giant cells and is not greater than could be expected in view of the number of blood plates; (3) that he has observed protoplasmic movement of identical character, both in the marginal zone of the giant cells and in the hyaline zone of the blood plates; (4) blood plates are found only in the blood of mammals and mammals are the only creatures having giant cells in the blood-forming organs; (5) that the blood plates make their first appearance in the embryonic blood at about the stage of development of the giant cells having appeared in the blood-forming organs. (He states that this point is not definitely established.) (6) The comparison of the results of the enumeration of blood plates (Helberg and Platt) in certain pathological conditions with the histological findings of the bone marrow in the same diseases suggests the relationship between the blood plates and giant cells; that in pernicious anemia and lymphatic leukemia blood plates are decreased in the blood and the giant cells in the bone-marrow, while in post-hemorrhagical anemia and myelogenous leukemia there is an increase in the number of blood plates in the blood and the relative and absolute increase of the giant cells in the marrow.

AN UNEXPLAINED FEBRIL AFFECTION WITH THE HIGHEST TEMPERATURE REPORTED TO DATE—Heller (*Munch. Med. Wochensch.*, June 19, 1906).—The remarkable case reported by Heller was one of fracture of one rib, concussion and probable infection of the cord. The highest temperature (taken with 7 thermometers) registered 49.9° C. (122° F.) axillæ. It remained at 45°-47° C. for seven days and was not below 42.2° (108° F.) for seven weeks. During the entire time the patient did not experience any other symptoms. The pulse was never over 120 and complete recovery was the ultimate result.

THE EFFECT OF ROENTGEN RAYS ON THE BLOOD—Benjamin, Reuss, Sluko, Schwartz (*Wiener Klin. Wochensch.*, June 28, 1906).—The authors concluded from numerous experiments by which they estimated the effect of the x-ray upon the morphology of the leucocytes, the chemical changes of the blood and the means of production of the same by the x-ray is as follows: In regard to the changes of the white cells Benjamin and Sluko say that not only exposures of the blood-building organs but also isolated exposures will produce a leucocytosis and lymphopenia. That the cardinal difference between exposing the entire animal and isolated exposures, is that in the latter, regeneration with astonishing ease is produced, which returns to the normal in 24 hours, while in total exposures regeneration takes from 7 to 10 days. As to the stages of this production after the exposure during the first day there was moderate decrease in the lymphocytes and increase of the polynuclear cells; in 24 to 36 hours appearance of an increase in the number of the large mononuclear cells; second to third day decrease in the polynuclear and an increase in the lymphocytes; and in one week beginning regeneration of the blood picture, Schwartz concluded as to the effect of the x-ray producing these changes (1) that there is a general chemical disturbance in the tissues producing a substance which is a positive chemotactic for the polynuclear leucocytes (Roentgen leucocytosis). (2) The presence of this substance in the exposed tissue corresponds to the Roentgen therapy reaction producing the increased acidity of the urine. (3) That this must be sharply differentiated from the Roentgen leucopenia. This takes place by the direct effect of the x-ray upon the tissue producing the leucocytes retarding the new production of the white corpuscles. Benjamin and Reuss in their experiments as to the chemistry of the x-ray on the blood concluded that after intense exposures of an organism, chlorine is produced and that it was observed that the presence of this element (chlorine) in the blood was accompanied by a leucocytosis.

DIAGNOSIS OF CARCINOMA OF THE STOMACH—Kuttner (*Berliner Klin. Wochensch.*, June 18-25, 1906).—Kuttner writes in detail on the early diagnosis of carcinoma of the stomach. Recognizing that only an early diagnosis is of any value to the patient or of any satisfaction to the physician, he urges that all diagnostic means be exhausted on suspected cases. Under predisposing causes he gives (1) heredity (Ewald, 6-7 per cent.); (2) previous lesions of the stomach, especially ulcers; (3) trauma. Among the early symptoms are (1) progressive stomach symptoms which will not react to the ordinary treatment in a man 50 or 60 years old where there has been no stomach complaint previous to that age. He has, however, observed carcinoma in the young. (2) Acute dyspepsia from a supposed error of diet and a sudden profuse hemorrhage exhibited by a hematemesis or melena often usher in the disease. (3) General dyspeptic symptoms mistaken for innocent catarrhal gastritis. (4) Progressive loss of appetite. Yet he has recorded some cases in which the appetite was good until death. (5) Aversion to meat. (6) Cachexia rarely found at the onset, and edema present usually only in the last stages. (7) Diffuse itching is often an early sign. (8) Angioma of the skin are not of special value. When not

congenital are sometimes present in the later and rapid development of carcinoma. (9) Enlargement of the clavicular glands occurs in the later advanced form, but umbilical enlargements may be early and that metastasis in the ovaries should always be sought. (10) Foul regurgitations, or foul odor through the tubes and ill smelling particles in the eye of the tube denote ulceration of the growth. (11) Pain may be absent constantly and is of little value. (12) Vomiting usually denotes carcinomatous orifices and may be absent even in those cases. (13) Muller and Tripler noted diarrhoea in 35 to 60 per cent., but that he and Boas had not observed so large a per cent. As to the production of Hcl he says that (1) its absence is not indicative for (a) it may occur in many other conditions (chronic gastritis, neurosis, atrophy, diseases of the lungs, etc.) and (b) it may be present in carcinoma on the base of an ulcer. Regarding the presence of lactic acid he says this is not positive for (a) it may be absent with carcinoma and (b) it is found with other conditions, but (c) the constant positive finding of lactic acid due to fermentation is of the greatest diagnostic importance; but it is rarely an early symptom. As to the value of the ferments he says they correspond to the findings of Hcl and vary accordingly. Glassner has used them for diagnostic worth as to the location as follows: (a) If pepsin and rennin are both markedly decreased the fundus is the seat of the lesion; if rennin is not decreased in proportion to the pepsin, the tumor is in the pylorus. The tryptophan reaction is of little value. The motility is decreased in carcinoma of the pylorus and lesser curvature in the majority of cases; but in fundus carcinoma often remains normal until the very end. The presence of a trace of blood and pus (leucocytes) in the empty stomach is a very valuable finding, for other conditions producing same are easy to exclude. The presence of blood even in traces chemically is one of the most important findings (ulcer must be excluded). Blood in the stools may come from other sources (diet, intestines, etc.). These occult hemorrhages must be found repeatedly or constantly to be of any value. The constant absence of blood speaks against carcinoma. Tumor tissue found in the vomitus of stomach contents, eye of tube or washings, are positive findings. He has never been able to make use of Hemmeter's method of curetting the stomach. Protozoa, as amœba and flagella, according to Cohnheim, found in the stomach contents are a relative early finding, they do not occur after the contents become fetid. Long, threadlike bacilli have the same importance as the lactic acid, and occur with stagnation and decreased Hcl. Occasional long bacilli are found in the presence of Hcl. Sarcine is found only in carcinoma ulcerosa. The urine and blood are of little diagnostic value. The most positive finding is the presence of a tumor of malignant character connected with the stomach. He classifies carcinoma without tumor into the two following groups according to the stomach contents: (1) Carcinoma with a good motility. These present a decreased amount of Hcl, absence of lactic acid, lactic acid bacilli and sarcine. He gives as points of differentiation from achlorhydria, gastritis acidia, "anademe" (atrophy) and neurosis the following: (a) Occult hemorrhage in the stomach contents and feces. (b) Constant finding of pus and blood in empty stomach. (c) Tumor tissue in stomach contents or vomitus. (d) Amœba and flagella in the stomach. (e) The presence of albuminous

washings in an empty stomach, according to Sollman. (f) The course and physical findings. (2) Carcinoma with a motor insufficiency coexisting with either (a) free Hcl present—sarcine but no lactic acid or lactic acid bacillus, and (b) Hcl absent and then lactic acid and lactic acid bacillus would be present with no sarcine. In regard to the tumors he demonstrates the difficulty of differentiating between benign and malignant tumors of the stomach, spasms of the pylorus, muscular hypertrophy and thickened scars in the region of the pylorus, exudates or perforations causing localized tumors due to ulcers offer their difficulties. He shows that a tumor of three years' duration may not necessarily be benign (Gerardt) as it is possible for carcinoma to be seated upon an old ulcer. From the stomach contents this differentiation is made by Gluzinski and Sigel's method but these methods have not proved to be accurate. The presence of metastasis, lymph glands, ovaries, etc., are of value. Among other experiments Kelling found precipitins in the blood present in 15 cases of carcinoma of the esophagus, stomach and large intestine, but Fulo failed to produce a reaction in the blood serum of carcinomatous patients with an abstract of the tumor tissue. With the use of x-ray and Riepel's meal, he says that valuable points have been demonstrated for the diagnosis of carcinoma of the stomach as (1) they produce unfilled spaces and defects in the flow of the fluid mixture through the stomach; (2) they produce abnormal outlines and contours; (3) they modify the peristalsis.

PATHOLOGY AND BACTERIOLOGY.

IN CHARGE OF

CARL FISCH, M. D.

THE DEMONSTRATION OF SPIROCHAETA 'PALLIDA IN TERTIARY SYPHILITIC PRODUCTS.—Levaditi (*Deutsch. Med. Woch.*, 1906, No. 23).—The knowledge that tertiary lesions are infectious is today established, especially by the observations lately published by Neisser. The apparent absence of Schaudinn's organism from lesions at this stage of syphilis was an objection raised by some as evidence against its etiologic role; others, including Schaudinn and Hoffman, assumed the possibility that the spirochæta, considered as a protozoon, might appear in the tertiary period in a stage of development not yet recognized, or very minute. Levaditi's method of staining the organism in tissues has proven effective in this direction as by this time some successes have been reported by Spitzer (two cases) and Rille and Volkerodt (one case) who found the spirochæta in sections of tertiary lesions. That they occur in lesions of this character in congenital syphilis was known. One such case was observed by the reviewer where the organism could be demonstrated in smear specimens. In acquired syphilis this has not yet been achieved. Doutrelepon and Grouven report four cases of tertiary syphilis in which the smear specimens revealed spirochæta. Another observer has found them in the vessel walls of syphilitic arterial lesions. It seems therefore that in the human organism wherever the syphilitic process exists in any form, the spirochæta is also

always present. In other words, it appears that the organism is always and everywhere the same, and so it is possible that we may be compelled to give up the idea that it does not represent a type of bacterial life, but a stage in the cycle of development of a protozoic organism. It is hard to decide at the present time as the observations published by Novy and those by Prowavzek on the bird spirochaeta are absolutely contradictory, the latter strongly suggesting a protozoal character for this spirochaeta.

A SERO-DIAGNOSTIC-REACTION IN SYPHILIS.—Wassermann, Neisser and Bruck (*Deutsch. Med. Woch.*, 1906, No. 19).

ABOUT THE DEMONSTRATION OF SPECIFIC SYPHILITIC ANTIBODIES AND OF THEIR ANTIGENS IN LUETICS.—Detre (*Wien. Klin. Woch.*, 1906, No. 21).

In both papers a method is described by which the processes of syphilitic substances in a serum can be demonstrated. Both use the method of inhibition of hemolysis after Moreschi. Wassermann has shown that a monkey inoculated with human syphilitic material will in seven or eight weeks yield a serum that if brought together with extracts of human syphilitic lesions always shows the phenomenon. Thus it is proven that in such a serum antibodies against syphilitic substances are present while the extracts themselves contain the latter. The action of this serum is the same on syphilitic material from monkey and from man. Very careful controls were made to show that the reaction was specific and not due to a precipitin formation caused by the injection of human proteid with the syphilitic substances in monkeys. The practical importance of this finding is apparent as we are enabled by them to determine whether in a human serum, or in an immune serum, specific syphilitic antibodies are present, and eventually to learn about their quantitative relations. To this is added the possibility of showing the presence of syphilis in isolated organs, a point that will be of great advantage for experimental investigations. It would be very important also to show the presence of syphilitic substances, or of their antibodies, in the circulating blood. Wassermann has succeeded in doing this in some cases, in others he has failed, most likely on account of the small potency of the immune serum at his disposal. The German expedition sent to India will have to solve the problem in this direction in the proposed extensive study of syphilis in monkeys.

STUDIES UPON EXPERIMENTAL VARIOLA AND VACCINA IN QUADRUMANA.—Brinkerhoff and Tyzzer (*Jour. of Medic. Research*, Vol. 14, No. 2).—The postulate made by Councilman in 1902, that experimental studies must decide the role that cytorrhcytes played in variola and vaccina was the object of Brinkerhoff's and Tyzzer's work, carried out at the biological Laboratory of Manilla. Their results are very interesting and important and may be summarized shortly as follows: Experimental vaccinia in maca-cynomologus was produced in 46 animals by inoculation into the skin, cornea and the mucosa of the soft palate, the nasal septum and the mucosa of the lower lip. Typical vaccinia resulted always, without general eruption; frequently the regional lymphatic glands were enlarged. Experimental variola was studied in two species of macacus and in the orang. The virus used was obtained from European and Philippine patients. Fifty out of 65 monkeys

inoculated into the skin of the abdomen showed a general eruption in 7 to 10 days; altogether the course of infection was the same as in man. In four orangs inoculated the lesions were very similar to those of the human variola vera, in the other monkeys, they gave more the picture of variola inoculata. Of eighteen monkeys inoculated in the cornea and twenty-nine inoculated in various mucous membranes a very considerable number developed general exanthema. The results of experiments made to ascertain whether variola occurs naturally in monkeys were negative so far as inhalation was concerned, while of course direct inoculation into the respiratory passages was successful. The studies of the immunity of monkeys after vaccinia or variola inoculation showed they were immune to both forms after vaccinia, but not always immune to vaccinia after variola. The smaller production of immune-substances in vaccinia inoculata is cited as the explanation of this observation. The degree of protection depends upon the site of inoculation and upon the character of the virus. Cytoplasmic stages of cytorrhcytes were found in all of the specific lesions, intranuclear stages only in variola. They are, therefore, specific for variola. They were very numerous in the primary lesions of the orang, and rare in the exanthema after inoculation into the skin, more frequent after intravenous injections. The authors found cytorrhcytes within the corium and within endothelia of blood-vessels and they consider this observation as an indication of the manner of dissemination. The most feasible explanation for the constant presence of the cytorrhcytes is, according to the authors' opinion, given by assuming that these cell inclusions are parasites and are the etiological agent of the disease. Differences exist between the reaction of vaccinia and variola virus on physical and chemical influences; the latter passes the Berkefeld filter, not the former. Sixty per cent glycerine prevents a general exanthema, and if passed a number of times through monkeys it loses its virulence.

In the same journal Tyzzer describes his studies in the histology of varicella lesions. Of the interesting structural changes it may be only mentioned that he found in epithelial cells in nuclei and protoplasm peculiar eosinophilous bodies. He leaves it questionable whether these inclusions are parasites.

ABOUT OCHRONOSIS—Pick (*Berl. Klin. Woch.*, 1906, No. 16-19).—The rare and obscure condition of ochronosis, mostly only discovered at autopsy, was observed by Pick in the case of an old woman, where the peculiar deep bluish discoloration of certain cutaneous areas enabled him to make the diagnosis *intra vitam*. The study of this case with an extensive review of all cases so far reported, led Pick to formulate certain theses, that in some way at least give a little more definiteness to this mysterious condition. The ochronosis, he says, is a definite form of melanotic pigmentation, the pigment being nearly related to melanin. First the pigment, circulating in the blood, impregnates the cartilaginous tissues, sometimes also connective tissue, muscle fibres and epithelia. The cells impregnated do not show any evidence of lessened vitality. The pigment, first diffuse, can later become granular. In both forms it is free from iron. The dark color of the surfaces is simply due to phenomena of light interference within the tissues. The pigment is

derived from the aromatic nucleus of proteid by action of a ferment, the tyrosinase.

Small amounts of carbolic acid introduced for a long time cause ochronosis. It can arise also through the action of tyrosinase on alcaptonic acid in the organism of individuals affected with alcaptonuria. Also in conditions where in an autolytic endogenic proteid dissintegration such proteids are found in the presence of the ferment. The pigmentation can involve external surfaces, the ears, sclera, face, legs, hands, so that the diagnosis can be made during life. In some cases it is excreted with the urine. In these cases, the urine, on standing, becomes black brown. Ochronosis can affect the kidneys themselves and the urine contain casts, the centrum of which is formed of melanin.

EXPERIMENTS ON MONKEYS BY INOCULATIONS OF FRAMBOESIA-VIRUS.—Alb. Neisser, Baermann, Halberstaedter (*Muench. Med. Woch.*, 1906, No. 14).—Although as long ago as 1881 Charlouis established the fact that Frambœsia was different from syphilis and that an individual suffering with the first infection could acquire syphilis, the question of the possible identity of both diseases has remained open. Under Neisser's direction a series of experiments were made in Batavia to give a final answer. In the first place it was found that monkeys (species of macaco and gibboo) were susceptible, and developed a disease absolutely identical with that seen in man. This disease was transmissible from one monkey to the other. It was established by the inoculation of internal organs that here, as in syphilis, a dissemination of the virus over the whole organism takes place. The inoculations with bone marrow were especially successful. Demonstrating the difference of Frambœsia from syphilis are the inoculations of monkeys first with Frambœsia, and then, after the development of the lesions, with syphilitic material. Two monkeys (macacons) thus showed the lesions of both infections side by side, an observation, that with our experience with syphilis, cannot be interpreted as two infections of the same character. Frambœsia and syphilis are, therefore, etiologically different. That they are nearly related to each other, is known by the discovery of Castellani, who found (like Schaudinn in syphilis) in yaws a spirochaete, microscopically not to be differentiated from the spirochaete pallida. Neisser has not given his attention to this side of the question, although promises to consider it in future investigations.

DIAGNOSIS.

IN CHARGE OF

ALBERT E. TAUSSIG, M. D.

THE DIFFERENTIAL DIAGNOSIS OF CANCEROUS AND OTHER STRICTURES OF THE ESOPHAGUS.—Marcou (*Arch. gen. de Med.*, 1906, No. 15; *Berl. kl. Wochenschr.*, 1906, No. 29).—As a means of distinguishing between malignant and non-malignant stenoses of the esophagus, Mar-

cou recommends the search for spirilla. An esophageal sound is introduced and an attempt is made to obtain thereby small particles from the neighborhood of the stricture. As cancerous ulcers almost invariably contain spirilla, the microscopic demonstration of the presence of the latter suffices to establish the diagnosis of a malignant stricture.

THE BACTERIOSCOPIC DIAGNOSIS OF EARLY PULMONARY TUBERCULOSIS—C. A. Blume (*Berl. kl. Wochenschr.*, 1906, No. 29).—The almost invariable absence of cough and expectoration in the earliest cases of pulmonary tuberculosis usually prevents the demonstration of tubercle bacilli from being used as a diagnostic aid in these cases. A year ago, the writer, in a paper abstracted in these columns, recommended the microscopic examination of small particles of laryngeal secretion obtained by means of laryngoscope and bent probe. He now reports in some detail 9 interesting cases, without cough, in whom the physical examination did not suffice clearly to establish the diagnosis of pulmonary phthisis. In all of them the laryngeal mucus contained a few tubercle bacilli. He explains this phenomenon on the hypothesis that the upward current maintained in the trachea by means of the action of its ciliated epithelium suffices to transport tubercle bacilli from the lung to the larynx.

TYPHOID DIAGNOSIS—W. Poepplmann (*Deutsch. med. Wochenschr.*, 1906, No. 24).—After pointing out the difficulties in the way of an early diagnosis of typhoid fever, the writer presents a method of his own. Blood, obtained by puncturing the sterile finger tips, is spread in the usual manner upon absolutely clean slides. The latter are then stained according to Jenner's method and examined under a high power. Even during the first few days of the disease, unmistakable typhoid bacilli may be seen lying between or sometimes within the red corpuscles, often appearing in very great numbers and never entirely absent! This astonishing statement must for the present at least be very sceptically received.

THE COATED TONGUE—L. Kast (*Berl. Klin. Wochenschr.*, 1906, No. 28).—The examination of the coated tongue as an index to gastric disorders, upon which formerly so much stress was laid, has now generally fallen into disrepute. This is probably chiefly due to the lack of evidence that the condition of the stomach can affect that of the tongue either by the direct ascent into the mouth of stomach contents (in the absence of regurgitation, eructation or vomiting) or otherwise. Kast, however, has shown that such a process actually does take place. A number of patients, all of whom were free from regurgitation, eructation and the like, were made to swallow capsules containing lycopodium powder. The mouth was rinsed with water that same evening and again the next morning. In over half the cases the mouth was found to be free from lycopodium in the evening but to contain it next morning. The conclusion may fairly be drawn, that in some cases stomach contents may gradually wander up the esophagus into the mouth and form a coating on the tongue. In these cases the con-

dition of the tongue may fairly be assumed to represent that of the gastric mucosa.

THE CHROMOSACCHAROMETER—Bendix and Schittenhelm (*Muench. med. Wochenschr.*, 1906, No. 27.)—A new apparatus for the rapid estimation of sugar in the urine depends upon the principle of the Moore-Heller test. The urine which is known to contain sugar is boiled for one or two minutes with a 10 or 15 per cent. solution of NaOH or KOH. A measured amount is then placed in a small, specially calibrated tube and compared with the color of a test solution consisting of a one per cent. solution of glucose in urine similarly treated. If the color of the treated urine is that of the test solution or paler, the urine contains one per cent. or less of sugar. If darker, the urine is diluted until the color of the test solution is obtained. The degree of dilution necessary, as in Gower's Hemoglobinometer, indicates the percentage of sugar. The apparatus, it will be seen, makes no pretense to accuracy but may well be useful for routine office work.

A NEW METHOD OF STAINING BLOOD-SPREADS WITH EOSINATE OF METHYLEN BLUE—Assmann (*Muench. med. Wochenschr.*, 1906, No. 28).—The dry unfixed spread is laid in a petri dish and covered in the usual manner with Jenner's stain. After 3 minutes, the dish is filled with 20 cc. distilled water to which 5 drops of a one-tenth per cent. solution of potassium carbonate has been added and shaken until the stain has been uniformly distributed throughout the fluid. After 5 minutes the spread is taken out and dried without further washing. This modification is said to give unusually brilliant pictures, the neutrophil granules in particular being beautifully stained.

FUNCTIONAL GASTRIC EXAMINATION—Ahrens (*Zentralbl. f. Physiol.*, 1906, No. 6).—A balloon made of peritoneum is coated inside with a mixture of albumen and congo-red, is attached to the end of a stomach tube, then introduced into the stomach and there inflated with air. In about five minutes the secretion of gastric juice begins, the juice penetrates the peritoneal bag and, if acid, colors the congo-red blue. The bag is then deflated, withdrawn and its interior examined. Portions of the gastric mucosa that do not secrete hydrochloric acid, such as ulcers, local gastritis, carcinoma and the like may be recognized by the fact that the corresponding portions of the peritoneal film remain red. In this manner it is hoped that the exact position and extent of gastric lesions may be recognized. Good results have been obtained with dogs; examinations with human beings are now in progress.

DIAGNOSIS OF PANCREATIC DISEASE—Taylor (*Lancet*, 1906, No. 4322).—Destructive diseases of the pancreas are accompanied by fat-necrosis as a result of which the fat is split into fatty acids and glycerin. The latter or its derivatives appear in the urine and may there be recognized by means of Commidge's test.

SURGERY.

IN CHARGE OF

WILLARD BARTLETT, M. D.

INDICATIONS FOR SURGICAL INTERVENTION IN INFECTIONS OF THE BILIARY TRACT.—Deaver (*Jour. Amer. Med. Assoc.*, Aug. 11, 1906).—Deaver believes the origin of such diseases to be in some form of bacterial infection and that the calculi are merely an incident of the disease and are not universally present in diseases of the gall-bladder and bile-ducts. Of 216 patients of Deaver's, 34 had no gall-stones. Possibly the majority of attacks of biliary colic are not due to the passage of gall-stones, but rather to a spasm of the gall-bladder caused by an acute cholecystitis. Although gall-stones are very prevalent, not every one presents symptoms. Deaver is in favor of operation in every case in which gall-stones are known to be present, provided there are no contraindications which would render an operation injudicious. Those cases of acute cholecystitis which do not subside under judicious medical measures after 36 to 48 hours, should be operated on. He thinks if there is a history of previous attacks and the history leads one to think stones present an operation is nearly imperative. When the attacks of cholecystitis are repeated, discomfort persisting in the intervals, an operation is demanded in order to obtain a cure. When the attacks give rise to cystic and pyloric adhesions, which impair the motility of the stomach, operation is almost invariably demanded. The mortality is small so long as the lesions are confined to the gall-bladder. In hydrops of the gall-bladder cholecystectomy is required. Cholecystectomy is indicated in empyema of long standing when the walls are irreparably diseased. In cases of acute empyema drainage may suffice and in case of doubt cholecystostomy is to be preferred. Gangrene and perforation require excision. Deaver believes that until the physician can combat the underlying condition of infection in cholelithiasis as successfully as the surgeon he had better leave the complications of gall-stone disease to the surgeon. He protests against the indiscriminate resort to cholecystectomy in cases in which the gall-bladder is not irretrievably diseased, but in which the surgeon may consider it a useless appendage. The value of the Carlsbad cure is discussed. The relation of typhoid fever to biliary diseases should be carefully inquired into in the future.

OPERATIONS ON THE SEMINAL VESICALS.—H. Riese (*Deut. Med. Woch.*, Vol. XXXII, No. 25).—Riese reports 7 cases in which he has removed the seminal vesicals by the perineal route. Five of the cases were tuberculous and the sputum contained tubercle bacilli. The cases having been operated on 5 years ago a cure of the genital condition may be assumed. Tuberculosis of the bladder was responsible for the death of one 5 months after the operation. The infection may have been carried into the bladder through a catheter introduced through the incision. The testicles and vasa deferentia were removed with the seminal vesicals in some instances. Riese prefers the perineal route for various

reasons. Psychic troubles were not present in any of his cases. The genital functions cannot be retained on account of the severity of the lesions. In two cases where the vasa deferentia alone were diseased recovery was uneventful. In two other cases he removed the seminal cords by evulsion. In these cases miliary tuberculosis rapidly developed to which the patients succumbed.

A REVIEW OF FIFTEEN HUNDRED OPERATIONS UPON THE GALL-BLADDER AND BILE-PASSAGES WITH ESPECIAL REFERENCE TO THE MORTALITY.—Mayo (*Annals of Surg.*, Aug., 1906).—The cases were operated on by C. H. Mayo and the author between the years 1891 and 1906. One thousand cases were reported by Mayo before the Southern Surgical and Gynecological Society in 1904. The three important considerations in the surgical treatment of diseases are first, the mortality; second, the permanence of cure; third, the disability arising from the operation itself. There were 66 deaths in the 1,500 cases, which includes all cases dying in the hospital from whatever cause. This is manifestly an injustice to the statistics, as there are included deaths from pulmonary embolus, myocarditis and a number of cases dying as long as a month after operation from chronic troubles. In the first 1,000 cases the percentage of deaths was 5 per cent., in the last 500 it was 3.2 per cent. There were 845 cholecystostomies with a mortality of 2.13 per cent. In the last 500 cases there were 272 cholecystostomies with a mortality of 1.47 per cent. Only in one case of the entire 1,500 did gall-stones reform in the gall-bladder. Where the cystic duct is obstructed and the gall-bladder takes no part in the circulation of bile, the gall-bladder should be removed. Thick walled gall-bladders which have become functionless lead to a suspicion of malignant disease and should be excised. In common-duct surgery it is not wise to remove a functioning gall-bladder unless for direct indication as common-duct cases more often require secondary operations than any other and afford easy drainage and enabling one to do cholecystenterostomy should further obstruction occur. The average case after cholecystostomy left the hospital well at the expiration of two weeks. There were 319 cholecystectomies with 3.13 per cent. mortality. In the series of 500 cases the cholecystectomies gave a mortality of only 1.62 per cent. Mayo thinks that the field for cholecystectomies is increasing. Where the disease is confined entirely to the gall-bladder and circumstances permit of its easy removal, cholecystectomy is the operation of choice. The cure is absolute when the disease is confined to the gall-bladder. Patients usually left the hospital fourteen days after this operation. There were 207 operations upon the common-duct; 105 cases with stones present in the common-duct, but without immediately active symptoms, with a mortality of 2.9 per cent. Then there was a series of 61 cases with not only active infection of the common-duct, but involving the ducts of the liver also. There were 29 cases of complete obstruction of the common-duct with a mortality of 34 per cent. This operative mortality is very high and includes death from both early and late complications. It is often wise to wait for a period of remission in this class of cases. There were 12 cases of malignant disease with

a mortality of 33.1-3 per cent. A most interesting problem with bile-tract surgery is the coincident inflammation of the pancreas. In 86 out of the 1,500 cases the pancreas was involved to such an extent as to be noticeable on examination.

In summing up the 66 deaths, 10 to 15 per cent. were accidental and could be eliminated. The majority of deaths were due to cessation of liver function and exhaustion from chronic cholemia. Mayo urges early operation while the disease is still in the gall-bladder, where a mortality of less than 1 per cent. can be shown. With the passage of the stone in the common-duct the disease is no longer local, but fraught with grave danger from liver infection and cholemia. One patient in every six of his cases let the favorable time for operation go by.

CONSIDERATION AND TREATMENT OF THE ACCIDENTS OF SURGICAL ANESTHESIA WITH SPECIAL REFERENCE TO PREVALENT DRUG TREATMENT.—Caswell (*Boston Med. and Surg. Jour.*, June 28, 1906).—The physiology of the heart, its relation to anesthesia, the physiology of shock and the action of various drugs proposed to combat shock and accidents of anesthesia are carefully reviewed by the author. He agrees with the views of Crile on the subject of shock and concludes that with the exception of adrenalin all drugs are useless in this condition. He recommends the intravenous infusion of salt solution with sufficient adrenalin chlorid added to make a 1-200,000 solution. Such drugs as strychnin and alcohol may be of value in surgical collapse, but better than these are artificial respiration, cold water to the face and ammonia fumes. If there is great loss of blood salt solution is indicated. In extreme cases the heart may be massaged through the diaphragm with the hand in the abdomen. As little anesthetic as possible should at all times be given, thus avoiding the above mentioned complications.

ORTHOPEDICS.

IN CHARGE OF

NATHANIEL ALLISON, M. D.

REPORT OF A CASE OF PARTIAL DISLOCATION OF THE FIFTH LUMBAR VERTEBRA UPON THE SACRUM.—Feiss (*Amer. Jour. of Med. Sciences*, July, 1906).—The case was that of a man who had a trunk fall upon his right side pinning him firmly against a stair on the left side. After the injury he had severe pain and limped, and there was ecchymosis of the right buttock. He limbered up, but soon got stiff again, and had to go to bed on account of pain. Seen first by the author nine months after the injury. At this time he was troubled with numb feeling and paresthesia. He believed his legs were growing thinner. No bladder or bowel symptoms; some cough. There was no tenderness and no apparent displacement of spinous processes in the lumbar region. A skiagram showed an apparent displacement of the fifth lumbar vertebra, three-sixteenths of an inch to the right of the middle line, and a compression of the left side of the body of the same vertebra. He was treated by

fixation in a plaster cast, and later by tight canvas belts with a pad over the sacrum. The case shows that a partial dislocation of a lumbar vertebra may exist without complications of fracture, and that it may persist unreduced and yet with improvement in symptoms; also that fixation is probably indicated in old, unreduced cases.

THE TREATMENT OF CONGENITAL DISLOCATION OF THE HIP.—Kirmisson (*Revue d'Orthopédie*, July, 1906).—The author considers all the reports since the year 1900 on the treatment of congenital dislocation of the hip, by the so-called bloodless method. He first takes up all the reports made on the cases that have died during or after treatment. He then gives complete analysis of all the statistics. He concludes that reduction of these luxations under chloroform is rarely perfect anatomically by the manipulative method; but from the point of function, the results obtained are all that may be desired. As to the age most favorable for reduction, he states it to be between three and five years; also in cases where the age of the patient, or the degree of luxation, renders a radical cure impossible, subtrochanteric osteotomy allows the limb to be placed in a good position and renders the patient the best service. Appended to this article is a complete bibliography of the literature on congenital dislocation of the hip since the year 1900.

FINAL RESULTS AFTER THE REDUCTION OF CONGENITAL HIP DISLOCATION.—Nové-Josserand and Petitjean (*Revue d'Orthopédie*, July, 1906).—The authors give complete memoranda on 38 cases of congenital dislocation of the hip, made up of 24 double dislocations and 28 single dislocations, composing 52 hips treated in all. Their results were as follows: Reductions, 16; pseudo-reductions, 12; transpositions, 17; relaxations, 4; fracture, 1; doubtful results, 2. They conclude that a radical cure is rare after seven years. The most favorable age for reduction is before five years, preferably between two and a half and three years. After ten or eleven years relaxation is probable; but amelioration may be obtained in spite of this, which justifies an attempt at reduction, especially in the extreme form of deformity. It does not seem an advantage to reduce the time of retention in a plaster bandage. On the contrary, a shorter immobilization period seems to favor relaxation of the hip.

WRIST RESECTION BY LATERAL INCISION.—M'Curdy (*Annals of Surg.*, July, 1906).—In the case reported a diagnosis of periostitis of the carpal bones was clear and an operation was advised. The operation consisted of a free incision into the internal surface of the carpal bones, the incision being made palmar to the styloid process of the ulna, and extending downwards to the base of the fifth metacarpal bone. This opening is sufficiently large to admit the index-finger, bone-forceps or chisel. Through this opening all the carpal bones, except the pisiform, were removed. The wound was closed with drainage and a perfect recovery was made in two months. In another case, the operation was repeated, except that only the first row of carpal bones was removed. This operation is undoubtedly a great improvement over the operation

of Mintar, which practically means a cleavage of the anterior surface of the wrist. It is also to be preferred to Lister's bilateral longitudinal incision, and Langenbeck's dorsal radial incision, as all of these operations impair the functional usefulness of the structures about the wrist. The unilateral incision furnishes perfectly free entrance to the joint for the removal of all the carpal bones, without including in the field of operation one tendon, or an artery large enough to require attention.

THE USE OF THE DOUBLE-WEDGE SPLINT IN THE TREATMENT OF FRACTURES OF THE HUMERUS—Wilkinson (*Edinboro Med. Jour.*, Aug., 1906).—That the methods of treatment in use are not altogether satisfactory is shown by the number of pads, wedges, splints and moulded appliances found in text-books on this subject. When one considers for a moment the shape of the space between the arm and the chest wall, the reason for the failure of these appliances becomes apparent. None of them seem to take into account the fact that the forearm must be brought across the front of the chest, in order that the wrist may be slung from the neck. With the fore-arm in this position, the space left has the shape of "a double wedge," i. e., it is wider below than above, and wider behind than in front. The author's splint is designed to fill this space, and so form a firm base of support for the broken limb. This wedge is placed well up in the axilla, and secured in position by crossing the ends of a flannel bandage attached to its upper end over the shoulder, and tying them on the opposite side of the chest. An outer splint of cardboard, or plaster of paris may be used. This gives better fixation to the arm, and also fixes the shoulder-joint.

TWO CASES OF LUXATION OF THE TENDON OF THE LONG HEAD OF THE BICEPS—Berne (*Le Progres Medical*, July 28, 1906).—Luxation of the long portion of the biceps is an accident of extreme rarity. The practitioner rarely has occasion to observe the condition immediately, but sees it usually long after the injury has taken place. The author reports two cases, which were seen by him immediately after the injury. In each case a violent sudden movement of the arm in external rotation was sufficient to produce the luxation of the tendon, inside the smaller tuberosity of the humerus. This was revealed on palpation, and was easily reduced. The members were immobilized for several days, and then treated by massage and passive motion. In neither case were there fractures of the bones in the vicinity. They each made a good recovery. The author reviews the literature, and gives a description of some anatomical researches made on the cadaver relative to the production of this condition. It was only produced by forced external rotation, elevation of the humerus forward, adduction of the arm towards the thorax.

GENITO-URINARY SURGERY.

IN CHARGE OF

H. McC. JOHNSON, M. D.

CYSTALGIAS IN WOMEN.—Rochet (*Ann. des Mal. des Org. Urin.*, July 15, 1906.)—To avoid the inconveniences and disadvantages of vesico-vaginal fistula made in the treatment of certain cystalgias, the author proposes, and has undertaken, in one case, with good results, the following procedure:

A transverse cut $1\frac{1}{2}$ to 2 cm. wide is made through the vaginal mucosa a finger's breadth behind the urethral meatus. The vaginal mucosa is dissected up until the sphincter of the bladder is reached, when a section of the sphincter muscle of the bladder is removed. Because of the intimate connection of the vesical mucosa to the muscle, it is usually injured. A urinary incontinence is thus established, but as the route is not direct, the vesical and vaginal openings being distant from one another, the fistula formed will easily cicatrize. It takes some time for the sphincteric ends to unite, so that the incontinence produced will relieve the condition, the pains will disappear and the local and general condition improve. The advantages of this procedure lie in the fact that the urine does not get into the vagina, consequently cannot irritate it, and that the incontinence is not absolute, the bladder holding a small amount of urine.

Certain vesical disturbances are quite frequently observed with women, sometimes very painful and rebellious to treatment, of which the interesting point is that they arise without a clear reason, and may resemble, at least in appearance, cystitis due to ordinary causes (blennorrhœa, tubercle, etc.). There are sufficiently common symptoms to classify them under the one head, "cystalgia of women." They are very rarely seen in early youth, but are found by preference in the later years of life.

In a great majority of cases the urine is turbid, and, consequently, the bladder infected, yet in certain cases the urine examined often, and with care, presents no apparent turbidity, and remains almost clear. A minute description of the differential diagnosis of these cases from those due to commonly recognized causes is given by the author.

In discussing the genital causes of bladder symptoms, he says that sometimes the bladder symptoms are dependent upon uterine disturbances, and, on the other hand, the bladder lesions may be at the bottom of the uterine complaints.

The distant origin of some of these cases is grippe, gonorrhœa, puerperal infection, gout, nervous disorders, yet the exact determining factor in the individual that makes the cystalgia in some cases and not in others is still a question of obscurity. We must endeavor to arrive at the true origin of the condition and treat accordingly. It is when the ordinary means of treatment at our disposal fails that surgery offers help. In the old and stubborn cases urethral dilations and internal sections of the sphincter are of signal service.

To meet the requirements for those cases that have resisted other treatment, the author has suggested the operation described above.

A NEW METHOD OF ANASTOMOSIS OF THE VAS DEFERENS.—Lydston (*Jour. A. M. A.*, July 21, 1906).—In spite of the over enthusiasm which attended the introduction of cord operations, it was not fair to push them aside simply because they did not fulfil the extravagant expectations of those who first advocated them. Cord operations in suitable cases have a profound influence on the innervation and circulatory supply of the prostate and seminal vesicles; incidentally a marked effect on nutrition must necessarily result. These effects are not so manifest in elderly patients, in whom the importance of sexual function is not great, as in younger patients in whom the sexual function is at its height of activity. This is an important point, for the value of cord operations has thus far been estimated from the effects in advanced prostatic disease in old subjects. These operations have not been employed to any extent in younger patients, in whom beneficial results can be more logically expected. While the author believes there is a legitimate field for the operation in genito-urinary work, he does not advocate it when there is any reasonable probability of relief being afforded by other less radical means. The operation, when properly performed, is practically free from danger. It does not produce atrophy of the testicle, a condition which, when it follows vasectomy, can be explained on grounds other than disturbed circulation and innervation incidental to the operation on the vas. It does not, in the author's experience, produce impotency, and, while the bilateral operation prevents the testicular secretion from taking its normal course, sterility cannot be charged up to the operation if the patient has been impotent prior to its performance, which is most often the case. An important point is that, while vasectomy does not produce permanent sterility, it is by no means necessary that the patient should remain sterile after the operation has accomplished its purpose. It is practicable, in probably by far the larger proportion of cases, to restore the continuity of one or both vasa deferentia at any time. Vasectomy has a certain range of application in sexual neurasthenics, spermatophobiacs, genuine spermatorrhea and pseudo-spermatorrhea. In intractable chronic prostatitis and seminal vesiculitis it is of the greatest value. Its beneficial effects are due not only to the change which it induces in the circulation and innervation of the prostate, but also to the rest which it secures to the seminal vesicles. The victims of seminal vesiculitis are often so profoundly neurasthenic that no surgical procedure is likely to give relief, and in these cases especially, vasectomy should be given a trial before the major operation of vesiculotomy is resorted to. It should be remembered that the full benefit of vasectomy, even in favorable cases, cannot be expected for several months. A very important field of usefulness for vasectomy is recurrent epididymitis. In most instances the infected condition of the deep urethra on which the epididymitis depends can be corrected. In some cases, however, in spite of methodic and scientific treatment, the epididymis becomes inflamed at intervals, and disables the patient for a greater or less period. This not only occurs in young and middle-

aged subjects as a consequence of specific infection, but in prostatitis, from pus or septic infection. The prevention of epididymitis in the latter class of cases is, of course, prostatectomy, but there are instances in which the patient is either too young for the operation or refuses to have it performed. Under such circumstances vasectomy may be performed, with the double object in view, of attaining such permanent benefit as may accrue in the particular case, so far as the enlargement of the prostate is concerned, and the prevention of further attacks of epididymitis. The integrity of the testicle in these cases is by no means menaced by the operation. Vasectomy has also a certain range of application in suspected or known tuberculosis, or malignant disease of the testes. Where the diagnosis is in doubt, the operation protects the patient during the period of delay in coming to a positive conclusion by shutting off the principal avenue of infection of the genito-urinary tract. When a patient with a known tuberculosis or malignant tumor of the testis declines or defers radical operation, vasectomy should be suggested. In several cases of enlargement of the prostate in which the patients were so debilitated by frequent and severity of the hemorrhages, vasectomy was successful in relieving them, or checking them altogether, thus enabling the patients to gain sufficient strength to endure prostatectomy.

The operation is done as follows: The vas is isolated from the cord and pinched up between the fingers with a fold of skin. A straight needle transfixes the scrotum just beneath the vas to hold it in position. A small incision is now made and the vas lifted out and separated from the fascia surrounding it, ligatures are placed above and below the portion to be resected, after resection the ends are touched with pure carbolic acid and brought together with catgut, the fascia replaced and the wound closed. If later it is desired to restore the continuity of the vas, as in cases of bilateral injury or bilateral vasectomy, it may be done as follows: An incision is made over the nodule indicating the site of the previous operation. The vas is separated from the cord and its enfolding fascia, lifted out of the wound, and the nodule excised. A fine, sharp probe or a long, straight needle is passed into the vas, which is bent at a sufficient angle to facilitate passing the needle through the wall of the duct about an inch and a quarter from its cut extremity. A strand of the heaviest silkworm gut is now passed into the vas and out through the opening made by the needle. The opposite end of the gut is made to enter the distal end of the vas. The object of the silkworm gut is to preserve the lumen of the vas during the process of healing. The vas is now stitched, end to end, over the coupling of silkworm gut, the free end of the gut is passed out through the skin, the fascia carefully closed over the site of operation and the wound closed. The silkworm gut is allowed to remain in position about a week. There is very little reaction following the operation, although a certain amount of exudation and nodulation about the line of union is perceptible for some weeks after the operation.

SOME UNTOWARD EFFECTS OF PROSTATIC MASSAGE.—Stern (*Internat. Jour. of Surgery*, July, 1906).—The author reports six cases of gluteal and sciatic neuritis, the origin of which he ascribes to either reflex stim-

ulation of some nerves of the sacral plexus, or to the direct irritation of the nerve plexuses in or around the prostate gland, and consequent transmission to the superior gluteal and sciatic nerves. He believes that the pain in all of the cases is attributable to the direct irritation of some part of the nervous system. The author is not a great believer in the pathological reflex, and he disregards infection (gonorrheal rheumatism) as an etiological factor in all of the cases, because, when the patients were given complete rest for from two to four weeks and prostatic massage discontinued, the pain disappeared entirely. In the cases reported the patients varied in age from 27 to 44 years. In all of them pain developed in the perineum, nates and posterior region of the thigh, shortly after the institution of prostatic massage, the continuation of which greatly aggravated the condition. Absolute rest with, in several cases, internal and perineal sedatives, and hot rectal irrigations, was followed in all instances by recovery in 2 to 4 weeks. The author concludes as follows: The most important part of the prostate, that likely to be most involved in difficulty, the middle lobe, lying directly beneath the neck of the bladder, is that portion of the gland which does not at all benefit by massage of the organ. The prostate ought not at all to be manipulated in the presence of an acute or subacute process, and in chronic prostatitis where gonococci can be demonstrated, massage should be performed with the greatest caution. We are acquainted with numerous cases in which by massage the spreading of infection by dissemination of pathological glandular contents was ushered in or facilitated, and we have just learned that sciatica and inflammation, or irritation, of other nerves may supervene in the wake of prostatic massage. When we stop to think for a moment that, aside from the lumbar plexus and sympathetic, the prostate obtains its nerve supply from the sacral plexus, which is composed, among other nerves, of the superior gluteal, the small and great sciatic, we understand that a direct connection between prostatic manipulation and gluteal-sciatic irritation can exist.

GYNECOLOGY AND OBSTETRICS.

IN CHARGE OF

HUGO EHRENFEST, M. D.

ROENTGEN RAYS IN THE TREATMENT OF OSTEOMALACIA.—Ascarelli (*Jour. Am. Med. Assn.*, July 7, 1906, p. 46).—Ascarelli of Rome recently reported to the local medical society the case of a woman, 38 years old, with puerperal osteomalacia cured by Röntgen treatment. The condition had grown much worse during her last pregnancy, and no benefit had been derived from any measures until Röntgen treatment was commenced. Prolonged exposure of the ovaries to the X-rays caused all pains to subside and the menses did not recur. Ascarelli is convinced that the ovaries have become atrophied under the influence of the Röntgen rays, although there are no means of ascertaining their exact anatomic condition.

A PLEA FOR OPERATIVE INTERFERENCE IN INTRACRANIAL HEMORRHAGES IN THE NEWBORN.—Carmichael (*Scottish Med. and Surg. Jour.*, June, 1906).—The writer gives Little credit for having first called attention to this group of cases. About 20 years later Sarah M. Nutt found that most of the children who before death offered the symptoms described by Little, died of an intracranial hemorrhage. This hemorrhage may be on the surface of the brain, or on its base. Surface hemorrhages in general are bilateral. Hemorrhages at the base usually are in the posterior fossa, beneath the tentorium cerebelli—surrounding the pons and medulla. Basal hemorrhages are more common in vertex presentations, internal extravasations more common in breech cases. Basal hemorrhages, as a rule, are fatal; cortical hemorrhages may be survived, the resulting symptoms being dependent upon the extent and location of the hemorrhage. A remote result is varying forms of spastic paralysis. This latter group of cases is amenable to treatment if the obstetrician immediately after delivery makes the right diagnosis. If there is the least doubt concerning the diagnosis, it is advisable to perform lumbar puncture since hemorrhage in the brain often can be detected by the presence of blood in the cerebro-spinal fluid. The operation consists in an osteoplastic resection of the skull to expose a large portion of one or both hemispheres, the removal of all extravasated blood from the cortex, and closing of the wound.

EARLY OPERATION FOR CEREBRAL HEMORRHAGES OF CHILDHOOD.—Frazier (*Meeting of Am. Surg. Assn.*, June 1, 1906).—Epilepsy develops sooner or later in from 30 to 50 per cent. of cases of infantile hemiplegia. In many of these cases, as has been proven by autopsies, the lesion has been a cerebral hemorrhage. The tendency toward secondary degenerative changes, such as atrophy and softening, the greater disposition in epileptic subjects toward mental defects, especially idiocy, and the otherwise hopeless nature of the disease, constitute the principal arguments in favor of early surgical intervention.

DIAGNOSTIC SIGNIFICANCE OF DECIDUAL TISSUE.—Graves (*Boston Med. and Surg. Jour.*, July 26, 1906).—The expulsion of a decidual membrane in a patient with symptoms of pregnancy and with a mass on one side of the uterus is extremely suggestive, but not conclusive for the diagnosis of an ectopic pregnancy. Thus, e. g., an ordinary miscarriage may be preceded by the exfoliation of a part or the whole of the decidua vera. It is extremely difficult under the microscope to make a differential diagnosis between a dysmenorrhoeic membrane and the decidua of an extrauterine pregnancy. The pathologist, before committing himself to a diagnosis, should insist on knowing accurately the history of the case. [This holds true for any attempt to make a clinical diagnosis from the microscopic examination of tissues.—Ed.]

SOME POINTS IN UTERINE AND OVARIAN PHYSIOLOGY AND PATHOLOGY IN RABBITS.—Bond (*Brit. Med. Jour.*, July 21, 1906).—In this very interesting contribution much new and valuable information is added to our present knowledge concerning the physiology of the genital organs.

A few of the conclusions based upon animal experimentation may be quoted here: The presence of functionally active ovarian tissue is necessary for the uterine function, or that portion of it which is concerned with the preparation by the endometrium of a suitable nidus for the imbedding of the fertilized ovum. The normal function of the ovary, on the other hand, including internal secretion, is not dependent upon the presence of uterine tissue or the endometrium. One function of the endometrium in the anestrus state is the secretion of a saline watery fluid of low specific gravity, containing a large amount of chloride of sodium. The mechanism by which the ovary obtains its stimulus from the stimulated endometrium consequent on the occurrence of pregnancy is a circulatory and not a nervous mechanism. In all probability some substance is produced by the endometrium or by the trophoblast which reaches the ovary, and also the mammary glands, by way of the blood stream. The prevention by previous hysterectomy of the secretion of the saline solution by the endometrium favors in the ovary an overgrowth of lutein substance.

LABOR IN HALF-NARCOSIS (Daemmerschlaf).—Gauss (*Arch. f. Gynaek.*, Vol. 78, H. 3, p. 579).—The writer gives in this article a detailed description of his observations in 500 confinements with the use of the scopolamine-morphine anesthesia. He experimented on 233 primiparæ and 267 multiparæ, the results being uniformly satisfactory. He usually began with a dose of 0.00045 to 0.0006 scopol. hydrobrom. and 0.01 morph. mur.; if the effect of this injection was not distinctly noticeable another hypodermic was given containing half the amount of scopolamine and no morphine. The first mentioned dose is then repeated when the patient begins to waken from her half slumber. This half anesthesia in some instances was continued for several days without any disadvantage to the patient. Thus one patient received within 48 hours a total of 0.0031 scopol. with 0.0475 morph. This anesthesia is contraindicated by the following conditions: Primary atony of the uterus, extreme debility of patient, fever, anemia and a condition of somnolence. This anesthesia seems to be free from any danger to either mother or fetus.

PEDIATRICS.

IN CHARGE OF

ALFRED FRIEDLANDER, M. D.

PERIODIC VOMITING AND ITS RELATION TO HYSTERIA—Fischl (*Rev. Mens. des Mal. de l'Enf.*, July, 1906) says that in a certain number of cases, periodic vomitings are manifestations of hysterical origin. They present themselves either as a symptom of latent hysteria, or as the first manifestation of an active hysteria. The acetoneuria which accompanies the attacks is not a sufficient reason for refusing to regard them as an hysterical manifestation. For, on the one hand, it is not rare to

find acetone in the urine of hysterical children, without gastric disturbance, in which cases the acetonuria is to be regarded as the expression of nutritional disorders inherent to the hysteria. On the other hand, there exist cases of recurrent vomiting with acetonuria in which it is impossible to deny the etiologic role of hysteria. The author has reported three such cases. In the future, therefore, the author suggests the advisability of looking for acetone in the urine of hysterical children, on the one hand, and of thinking of hysteria as an etiologic factor in cases of recurrent vomiting on the other, in order that a therapy of suggestion may be instituted.

PERIODIC VOMITING IN CHILDREN AND ITS RELATION TO APPENDICITIS.—Granfelt (*These de Paris*) says that among the diverse causes which can produce recurrent vomiting in children (neuro-arthritis, disturbance of the hepatic functions, etc.) it appears necessary to assign a place to appendicitis, particularly the cases of chronic appendicitis with several attacks. Indeed, in these cases, according to Comby, the attacks of recurrent vomiting may form the only appendicular phenomenon during long periods of time. The pathogenesis of this larval form of appendicitis is still to be elucidated. In rare cases where there are old and strong adhesions, it is to be sought in the traction which these exert on the stomach wall (Broca), more often the recurrent vomiting is only a reflex accident due to the appendiculo-peritoneal lesion.

In addition to these cases, where periodic vomiting seems undoubtedly to stand in etiologic relation to appendicitis, it would also appear necessary to admit the possibility of co-existence of the two diseases.

It is necessary to take cognizance of these facts in doubtful cases. Periodic vomiting in children, either with or without fever, and constipation, must henceforth awaken the idea of a crisis in the course of a chronic appendicitis, a point of view hitherto ignored. The disappearance of the gastric symptoms, after appendectomy could alone absolutely verify the diagnosis.

VARIATIONS IN THE FAT PERCENTAGE OF HUMAN MILK.—Taylor-Jones (*Arch. of. Ped.*, July, 1906) insists upon the importance of human milk in infant feeding, declaring that the change to artificial food should not be undertaken lightly. Besides the immediate danger to the child, which at times is, of course, not great, there is always the risk of lessening the stamina of the child for later years.

If there be some disturbance to the nursing infant, the breast milk should be analyzed, unless some definite contraindication to breast feeding, like tuberculosis, be present. The fat is a most important factor of mother's milk, and a factor which is very variable. Recent investigations have shown the intimate relations which exist between the fats of the infant's food and marasmus. For the most part fat increases gradually in amount from the beginning to the end of a feeding, with occasionally a dip down at the end. There is no proof as yet that the increase is arithmetical. A baby needing more fat than it is getting can easily be put to the breast after some of the milk has been pumped out.

For details as to methods of examination and technique, reference must be had to the original article, but one point apparently established by the investigation may be noted. A fat percentage, within a few tenths of a per cent. of the average, may be obtained by taking equal specimens from the beginning and end of the feeding and examining the mixture. This is entirely practicable clinically, according to the author, and should be done.

LYMPHOCYTOSIS OF THE CEREBRO-SPINAL FLUID, IN CONGENITAL SYPHILIS, AND ITS DIAGNOSTIC VALUE.—Tobler (*Jahrbuch f. Kinderheilk.*, July, 1906) calls attention to the fact that cytodiagnosis of the cerebro-spinal fluid has not found a prominent place in pediatric study as its importance warrants. It has been known for some time that in certain inflammatory conditions of the meninges, the cerebro-spinal fluid contains an excess of lymphocytes. The French school has been particularly active in the study of this question, and lymphocytosis has been found to be present in specific myelomeningitis, in tabes and in progressive paralysis. The technique of the method is not at all difficult. A lumbar puncture is made, and the fluid obtained thoroughly centrifugalized. The supernatant fluid is used for the quantitative determination of albumen if this is desired, the sediment is spread on cover glasses; fixed and stained.

In 14 cases of congenital syphilis, confirmed either by careful clinical or anatomical examination, Tobler found a lymphocytosis of the fluid in 12 cases (85.7 per cent.). In one case the result was doubtful, one case was negative. Increase in the quantity of albumen was present in 5 of 7 examined cases. The figures given are only a little lower than those ordinarily given for acquired syphilis.

It is possible that this test may offer important diagnostic aid in doubtful cases.

OPHTHALMOLOGY.

IN CHARGE OF

JOHN GREEN, JR., M. D.

THE VALUE OF X-RAYS IN OCULAR THERAPEUTICS.—Ring (Read at the *Ophthalmic Section, Am. Med. Assn.*, Boston, June, 1906.)—Ring draws the following conclusions:

1. X-ray therapy marks a great advance in the treatment of superficial epithelioma and rodent ulcer of the eyelids and can usually be relied on to effect a cure.
2. If unsuccessful, then electro-chemical sterilization may be utilized or finally excision with or without plastic operation.
3. X-ray treatment has proven of value in the more extensive orbital carcinomata, but it is conceded that the deeper the growth the less favorable will be the result.
4. A sufficient number of cures of sarcoma of lids and orbit have been reported to warrant its exhaustive trial in all types of this disease.

More radical operative procedures with subsequent ray applications being indicated in event of primary failure.

5. X-ray treatments usually exert an anodyn influence on malignant disease of the eyelids and orbit, but are occasionally reported to cause exacerbations of pain.

6. Noteworthy progress in the treatment of trachoma has been effected by the utilization of X-ray therapy. It should invariably be utilized if ordinary methods fail.

7. The weight of evidence indicates the positive value of X-ray treatment of vernal conjunctivitis.

8. There is evidence which points to the value of X-ray therapy in chronic conjunctivitis, scleritis, episcleritis traumatic uveitis, conjunctival tuberculosis, corneal ulceration, glioma and gummata.

9. It is believed that the rays will cure malignant disease involving the cornea and conjunctiva, provided treatment is applied sufficiently early.

10. The treatment of congenital nevi by the rays is likely to prove effective and should be exhausted before electrolysis or radical operation is considered.

11. Further testimony must be accumulated before an authoritative statement is possible of the effect of X-rays in painful types of iridocyclitis and glaucoma and other ocular diseases.

EVULSION OF AN EYE DURING BIRTH.—Gad (*Ophthalm. Review*, July, 1906).—After forceps delivery through a narrow pelvis, the child bled from the left eye and the lid was found ruptured. The following day the eye was found lying loose in the orbit, having about half an inch of the optic nerve attached to it and being held only by some lacerated tissue. A scar in front of the right ear indicated the site of one blade of the forceps, so that the other blade must necessarily have taken hold on the other side far behind the eye. The forceps did not slip and were introduced but once. Total ablation of the eye has been recorded in nineteen cases. In a large majority, forceps were used and usually to a high standing head. If the forceps take hold in the occipito-frontal diameter it may happen that the tip of one blade enters the orbit and "scoops" out the eye, rupturing the optic nerve or breaks in the orbital wall so as to leave no room for the eye. There are other cases, however, in which the forceps were undoubtedly correctly applied and in which ablation took place. Post-mortems have usually shown fracture through the roof of the orbit. The process is supposed to take place in the following way: Uterine contraction and the forceps cause an injury, probably always a fracture, the hemorrhage from which is sufficient to push the eye forwards to the level of the orbital entrance. During remission in uterine contraction or pauses in the traction of the forceps the hemorrhage and the exophthalmus increase and as the uterus and forceps recommence their work and force the head forwards, the upper lid is pressed against the wall so as to resist the passage of the head, and this pressure forces the eye out of the orbit and may be even strong enough to tear through the optic nerve and lacerate the lower lid or even tear it off. The eye is then, by the birth of the head, placed

under the zygomatic process on the soft cushion of the maxillary groove, perhaps quite detached, or it may be drawn back into the orbit by the incompletely ruptured muscles.

A CASE OF SUPPRESSION OF AQUEOUS SECRETION.—D. C. Lloyd.—Owen (*Ophthalmoscope*, August, 1906).—The author reports a case in which the secretion of aqueous humor was repeatedly suppressed without any obvious pathological change in the eye to account for such a secretory derangement. A professional man, aged forty, complained of blurring of the sight of the right eye and a slight soreness on the top of the eyeball. The anterior chamber was very shallow, but the pupil was active and normal in size. Sudden movements of the eye caused subjective light sensations. Tension—2. By retinoscopy his refraction was 2.5.V.6/6. L. Eye normal. Treatment with pilocarpine, varied with atropin and dionin, was without effect. Four weeks after the onset of symptoms his sight suddenly cleared up and for some hours he could see as well with the right eye as with the left. A week later he again recovered the vision of the right eye and at once presented himself for examination. The eye now showed normally deep anterior chamber, the refraction was practically emmetropic, the cornea was bright and the vision was 6/6. Tension normal. After several more relapses permanent recovery ensued. Careful examination of the innervation of the eye and of its appendages failed to discover any departure from normal conditions.

PERSISTENT HYALOID ARTERY IN BOTH EYES—UNUSUAL VARIETY IN ONE EYE.—W. T. Shoemaker (*Ann. of Ophthalm.*, April, 1906).—The author's case showed in the right eye a very delicate but long, almost invisible strand, with its free end in the vitreous and its fixed end traceable toward and even on the disk, but not quite to the central vessels. In the left eye was a large, quite freely movable apparently tubular structure which interfered at times with vision. When not in the way corrected vision in the eye was 5/5. Surrounding the apparent mouth of the tube and perhaps cystic end and running spirally around it backward was a fine sharp glistening strand or band. The proximal end was close to the lens. The distal end apparently had no attachment. Running from the forward end fan-shaped upward toward the ciliary body were three very fine threads, stretched tight and resembling guy ropes. The explanation, according to Shoemaker, is that the neural extremity of the artery has disappeared and likewise the lenticular extremity with the exception of a few peripheral strands of the vascular tunic of the lens attached to the ciliary processes. What would otherwise be a liberated persistent section of the hyaloid is thus suspended from the ciliary processes by these three strands and its posterior end is the really free end.

LARYNGOLOGY AND OTOTOLOGY.

IN CHARGE OF

WILLIAM E. SAUER, M. D.

A PROPOSED OPERATIVE MEASURE FOR THROMBOSIS OF THE CAVERNOUS SINUS—Longworthy (*Laryngoscope*, July, 1906).—The author's method consists of elongating the usual incision for a frontal sinus operation downward along the nasal bone. The eye is retracted out of the field and the inner wall of the orbit is removed over a considerable area together with the nasal bone on that side. The entire structures within the nasal fossa, ethmoid labyrinth and turbinates, are then curetted out. This at once brings one down on the anterior surface of the body of the sphenoid with the opening of the sphenoidal sinus in plain view. The anterior wall of the sphenoidal sinus is next to follow and also the external or lateral wall against which rests the cavernous sinus. From this point one can do considerable on the cadaver with a prick of the knife and a properly curved blunt dissector. If unsuccessful in opening the cavernous sinus, the external wound is easily closed, the eye remains uninjured and nothing is lost by the attempt.

The above operation, while theoretically correct, has this objection. On account of the internal carotid artery lying high up on the lateral wall at the superior external angle of the sphenoid, it may be opened; but an opening through the lower two-thirds of the external wall should miss it. If not successful, from the lateral wall a small opening may be made in the thin roof in the hopes of striking one of the circular sinuses which connect the cavernous, one with the other. With a moderately large opening through the orbit, one is working at all times in a good light.

THERAPEUTIC EFFECT OF SOUND WAVES, OR MECHANO-THERAPEUTICS OF THE EAR—Blake (*Boston Med. and Surg. Jour.*, July 12, 1906).—The author's views of the therapeutic effect of sound waves upon the organ of hearing are summed up in the following conclusions:

That application of sound waves to the ear for therapeutic purposes is the application of a form of massage commensurably proportionate to the delicacy of the sound transmitting structures of the middle ear and labyrinth.

That the prolonged use of tones of excessive amplitude and very low or very high pitch, whatever their beneficial mobilizing effect upon the sound transmitting apparatus of the middle ear may be, are open to the objection of their prejudicial effect upon the organ of perception.

That mechanical reproductions of speech are open to the objection of their accentuation of overtones and their presentation of a distortion of a familiar sound picture, that of the normal voice.

That the natural voice concentrated upon the ear is, both in its range and its volume, as well as in the more general exercise afforded by its complexly compounded sound waves and the readiness with which it may be uniformly applied, the safest and, in the end, the best form of sound source for phonomassage of the ear.

HEADACHE OF NASAL ORIGIN—Lambert Lack (*The Practitioner*, July 1906).—On investigating the cause of headache every local source for trouble should be carefully sought for. Among the local causes of headache, affections of the nose occupy a prominent position. It is important to bear in mind that patients frequently seek relief for headache alone, and may complain of no symptoms distinctly implicating the nose. Under these circumstances the nasal disorder may be overlooked. The author also emphasizes the fact that even if the headache is associated with nasal trouble, a thorough systemic general examination should not be omitted. Headache resulting from nasal affections may vary much in character, in site and degree. It may be constant or periodic. It may be described as a dull aching sensation or as a sharp and stabbing pain or as a feeling of heavy pressure. It may be localized at the frontal region, to the vertex or to the back of the head; it may radiate all over the head, even true hemicrania may be met with. There is often no characteristic feature indicating its nasal origin. Generally the pain in the head associated with nasal disease is more circumscribed and continuous than headache due to other causes. It often seems to start from, or radiate into the nose, and is often neuralgic in character. The following nasal conditions are given as causes of more or less distinguishable forms of headache:

1. Headache resulting from nasal obstruction. This being especially common in children suffering from adenoids and in adults suffering from nasal polypi or hypertrophic rhinitis. In adults headache is more common in disease of the ethmoidal region than in disease of other parts. The pain in this condition is usually of a dull aching character occurring chiefly on waking from sleep and wears off during the day.

2. Referred pain from nasal pressure. A typical example of this form of headache is that due to enlargement of the middle turbinate. The pain is referred chiefly to supra-orbital region of the same side, whence it may radiate down the nose, into the eyes and across to the opposite side. When very severe it is accompanied by pain on pressure over the supra-orbital region and over the nasal bone. This pain is often associated with suppuration in the frontal sinus, ethmoid or antrum, but occurs independently and generally disappears when the anterior head of the middle turbinate is removed. The periodicity of this pain is due to an intermittent swelling of the mucous membrane covering the bone. Large spurs or deviations of the septum pressing on the turbinates are frequent causes of headache.

3. Headaches resulting from acute or chronic inflammatory conditions of the accessory sinuses. These headaches are usually periodic. The pain commences in the morning and gradually increases for two or three hours. When most intense, discharge begins to flow from the nose and the pain slowly subsides. When due to disease of the frontal sinus the pain is usually most intense on top of the head towards the front part of the frontal bone. There may also be pain over the frontal region radiating into the eyes. When intense, the pain is accompanied by superficial tenderness over the posterior part of the frontal bone and over the innermost part of the orbit. Pain due to disease of the sphenoidal sinus is readily referred to the back of the head, radiating down the back of the neck. Pain due to ethmoidal disease may be referred

to the frontal region or situated deep behind the eyes. Pain due to antrum suppuration is more often situated over the malar bone. All these forms of headache may be accompanied by pain in the supra-orbital region, due to an associated enlargement of the middle turbinate.

PALLIATIVES FOR HAY FEVER.—Cohn (*Jour. A. M. A.*, July, 1906).—Based on the observations made on himself and others, Cohn discusses the present methods of treatment of hay fever. He has found that for some individuals and in certain seasons the systemic action of suprarenal preparations suffices to induce and preserve comparative comfort. They must be absorbed from some mucous membrane where they can escape exposure to the digestive organs. Cohn has found a tablet containing 1-20th grain suprarenalin with a small amount of sugar of milk effective when allowed to dissolve on the back of the tongue. This dose may be repeated in ten minutes or two hours as necessary. Sometimes one dose will suffice for the day. He also considers Dunbar's antipollenic serum as a distinct addition to our resources, its effects being positive in from 30 to 50 per cent. of the cases met with. He has not found it to be more than a palliative, however. In some cases where the above measures fail, relief may be aided and often achieved by the judicious internal administration of the belladonna preparations. He employs atropin sulphate or hyocin hydrobromate, the dose of either being from 1-2500 to 1-500 of a grain. The dose is repeated every ten to ninety minutes until the sneezing and running of the nose are controlled. Rules as to living and diet are also given in detail. Dark glasses also are valuable aids.

DERMATOLOGY AND SYPHILIS.

IN CHARGE OF

MARTIN F. ENGMAN, M. D.

CASE OF TERTIARY SYPHILIS WHICH RESEMBLES, IN ITS COURSE AND SYMPTOMS, PHTHISIS PULMONALIS.—Fischel (*Med. Fortnightly*, June 11, 1906).—The patient, a man, age forty-six, denied the presence of syphilis. Had frequent attacks of grippe and since the last attack of grippe has not been well. His appetite failed and he lost from 75 to 80 pounds. Complained of pains in chest and slight cough and nightsweats. A tentative diagnosis of phthisis was made, though no tubercular bacilli were found, and there were no physical signs of the disease. The patient ran a temperature of 100 degrees, with rapid pulse, and complained of feeling chilly. Expectoration was muco-purulent. Upon the patient finally confessing that he had probably had an initial lesion some years previously, he was put upon a mixed treatment which finally improved his condition to a normal status of health. This case is of unusual interest on account of the rarity of the condition.

TERTIARY SYPHILITIC FEVER.—D'Amato (*Riforma Medica; Jl. A. M. A.*, July 21, 1906).—D'Amato relates the history of three syphilitic

patients who exhibited a temperature several degrees above normal, rebellious to quinin, but soon yielding to mercurial treatment. His experience shows that this syphilitic fever is liable to appear in the early stages of the secondary phase and recur again later during the tertiary phase, possibly as late as fourteen or sixteen years after the infection. The fever in the tertiary phase may be intermittent or continuous remittent, or it may change its type in the same patient. It may continue for several years during both the secondary and tertiary phases, and may be accompanied by visceral manifestations, especially in the liver. But it does not seem to be dependent upon these lesions and may occur without them. The fever may subside spontaneously, although in such cases it shows a tendency to recur. When it subsides as the result of specific treatment it falls by lysis.

SYPHILIS OF THE LUNG.—Elsworth Smith, Jr. (*Medical Fortnightly*, June 11, 1906).—The author adds one case to the literature of this condition. The case was an American waiter forty-two years old. His present trouble dated after exposure when he was taken with severe pulmonary hemorrhage. These hemorrhages occurred frequently. Four months later the author saw the patient for the first time and found the man in the hospital with a diagnosis of pulmonary tuberculosis. Physical examination at that time showed infiltration of the right lower lobe posteriorly and some rales. There was a scar upon the frenum and a perforation of the nasal septum. Examination of the sputum showed no tubercular bacilli. He was placed upon specific treatment which produced rapid improvement to a complete cure. The author gives the following points in a differential diagnosis between syphilis of the lung and pulmonary tuberculosis: (1) The establishment of the undoubted presence of a syphilitic infection and a specialty of lesions in other parts of the body. (2) The absence of the tuberculin reaction, or, on repeated examination, of tubercular bacilli in the sputum. (3) The evidence of an infiltration or consolidation of lung tissue especially seated in the sites of predilection, viz., the middle or lower lobes. (4) The effect of anti-syphilitic treatment. It must be remembered that the two diseases may co-exist.

ALOPECIA IN HEREDITARY SYPHILIS.—Leiner (*Archiv. f. Derm. u. Syph.*, Vol. LXXVIII., p. 239).—This alopecia occurs more frequently in the form of bands upon the scalp, localized principally upon the postero-lateral and fronto-parietal regions. This is probably caused by a diffuse infiltrating process exaggerated by the normal seborrhœa of these parts. The writer describes three characteristic cases of the diffuse and circumscribed type.

CONTRIBUTION TO THE STUDY OF PULMONARY SYPHILIS OF THE NEW-BORN AND OF ADULTS.—Ichijiro Kokwa (*Archiv. f. Derm. u. Syph.*, Vol. LXXVIII., p. 69).—The occasion of this report is the study of four cases. In syphilitic pneumonia the change is characterized by dilatation of the alveoli consecutive to inflammatory proliferation of the connective tissue, and to these is a secondary change in the pulmonary epithelium

consisting in the degeneration of these cells and abnormal proliferation. The proliferation of the connective tissue, in the first stages of the infection, is limited principally to the interstices of the lung. Later it continues to the interior of the alveoli and of the bronchi. The first causes a modification of the form by compression. Therefore the proliferation is most marked in the perivascular regions, that is, about the bronchi between the lobes and the alveoli. The lesions of the vessel consist in the notable infiltration of the upper coats. Endarteritis is rarely seen. Elastic fibres are arrested in their development.

THE TREATMENT OF EPITHELIOMA BY MEANS OF CAUSTIC POTASH.—Van Harlingen (*Jl. Cut. Dis.*, August, 1906).—The writer believes that in a certain number of cases epithelioma of the skin is best treated by means of caustic potash. The cases best treated by this method are the small, well defined, pearly lesions varying in size from one-half to two centimeters, chiefly upon the face and adjacent parts. Large lesions are best treated by the x-ray, but here caustic potash may be used as an adjuvant, and it does not seem to modify in any degree the resultant effects produced by the x-ray.

MEDICAL LAW AND MEDICAL JURISPRUDENCE.

IN CHARGE OF

IRVIN V. BARTH, LL. B.

SURGICAL OPERATION ON MINOR WITHOUT CONSENT OF PARENT.—*Bekker v. Welsh et al.* (Supreme Court of Michigan, July 3, 1906), 108 N. W. 94.—Suit by father of deceased under what is known as the "Death Act." Deceased was 17 years old and lived with his father on a farm. He was afflicted with a tumor and while at home attempted to have it removed by absorption. He then went to the city with an aunt and two sisters, all adults, submitted to an examination, received some advice and went back to his father with an agreement to return later to receive the report of an expert who was to make the microscopic examination. He returned accordingly, and with at least some of his adult relatives arranged to have a surgical operation of a not very dangerous character performed. While an anesthetic was being administered, preparatory to this operation, the boy died. There was no evidence to indicate that the father had not approved of his son's going with his aunt and adult sisters, and consulting a physician as to his ailment and following his advice.

Upon these facts the court considered as follows: "We then come to the question: Are defendants liable in this action because they engaged in this operation without obtaining the consent of the father? Counsel for the plaintiff are very frank with the court, and say in their brief: 'We are unable to aid the court by reference to any decisions in point. We have devoted much time and research to this interesting question, but have been unable to find any decisions of a higher court either support-

ing or opposing the plaintiff's contention, and we will therefore have to be content by calling the court's attention to such general reasoning as leads us to take the view herein contended for.' They then argue at length and with a good deal of force, that, as the father is the natural guardian of the child and is entitled to his custody and his services, he cannot be deprived of them without his consent."

But the court held: "We think it would be altogether too harsh a rule to say that under the circumstances disclosed by this record, in a suit under the statute declared upon, the defendants should be held liable because they did not obtain the consent of the father to the administration of the anesthetics."

Note: Taylor in his admirable work on "The Law in its Relations to Physicians," published in 1901, at pages 314-315 made these pertinent observations with reference to the matter of the principal case:

"An important question of law arises, however, when an operation is performed upon a wife or upon a child, as to whether or not the surgeon must first secure the consent of the husband or parent. In a well considered case (*Janney v. Housekeeper*, 70 Md. 162) the Court of Appeals of Maryland denies that a husband has the right to withhold his consent to the performance of a necessary surgical operation upon his wife. The court, speaking through Justice Yellott, said: 'Surely the law does not authorize the husband to say to his wife, You shall die of the cancer; you can not be cured, and a surgical operation affording only temporary relief will result in useless expense. The husband has no right to withhold from his wife the medical assistance which her case might require.' Following the reasoning of this decision, one can not see why a physician should be required to secure the consent of a parent before operating upon a child, provided the child was of proper age and discretion to understand the nature and effect of the operation proposed. As there seems to be no precedent upon this particular point, the question can not be authoritatively answered until a case involving the question shall arise which the parties thereto think sufficiently important to take to a court of last resort."

In face of this dearth of authority the principal case from the Supreme Court of Michigan, following closely upon the observations of Taylor, will go far toward shaping the law involving the legal obligation of the surgeon to secure the consent of the husband or parent before operating upon the wife or child. The principle here declared seems in accord with the logic of the law.

EVIDENCE OF EXTENT OF PRACTICE OF PHYSICIAN AS DETERMINING COMPENSATION FOR SERVICES.—*Sills vs. Cochems*, (Supreme Court of Colorado, May 7th, 1906), 85 Pac. Rep. 1007.—In an action by a physician for the value of professional services, rendered without any contract as to price, evidence was held admissible that plaintiff was busily engaged in the practice of his profession.

"The value of professional services," said the Court, "may depend very considerably upon the character and standing of him who performs them. In the first place there are diversities of gifts. The period of time passed in the profession, the experience acquired, degree of skill and

the faculty of using professional knowledge make great differences in individuals. The services of some are worth more than the services of others, because they will command more. Should a question arise as to the value of services, in an action brought by a physician to recover fees, where the nature of the services performed makes the possession of certain qualifications to constitute an important element in the value of those services, as in this case where the plaintiff was called because of his peculiar skill as a diagnostician, evidence of professional standing is clearly admissible and is entitled to consideration.

"The fact that plaintiff was extremely busy tends to show his professional standing, and tends to show, in connection with other testimony concerning the length of time he had practiced medicine in that community, his experience, which gave him the requisite knowledge and ability to properly diagnose and prescribe the necessary medicines for diseased persons. If constant practice in the art of his profession renders a practitioner more capable than he otherwise would be, the extent of such a practice is a matter which may be properly inquired into for the purpose of determining the value of the services rendered."

MEASURE OF DAMAGES IN SUIT FOR MALPRACTICE.—*Froman v. Ayars, et al.* (Supreme Court of Washington, March 20th, 1906). 85 Pac. Rep. 14.—In an action for alleged malpractice the jury had returned a verdict for plaintiff in the sum of \$5,000.00. Appellant's counsel contended that the verdict was excessive and that the measure of damages for the loss of a limb through malpractice is different from what it is where the loss is from the original injury caused by negligence. They argued that "the primary cause of the result which came to respondent was the running away of the team, for which appellant was in no way responsible, and that the degree of appellant's responsible relation to the final outcome cannot be as great as that of one whose negligence laid the first foundation for the injury."

But the Court reasoned that the theory of the case "is that the final outcome to respondent, by which he was deprived of a foot for the remainder of his life, would not have resulted if appellant had properly applied his learning and skill. It is true respondent would have suffered pain and distress from the original injury, yet, if the bones had properly united and the wound had healed, the suffering would have been but temporary, while, as it is, he must continue to suffer humiliation, inconvenience, and loss of earning power during the remainder of his life. If such a result would not have occurred but for appellant's neglect, we are not impressed that there is force in the logic of counsel's argument."

And the Court held further that the verdict for \$5,000.00 for loss of the foot of a man, 44 years old, is not manifestly excessive, though his earning capacity is only that of a common laborer.

BOOK REVIEWS.

REFRACTION, INCLUDING MUSCLE IMBALANCE AND THE ADJUSTMENT OF GLASSES.

By Royal S. Copeland, A. M., M. D., Professor in the University of Michigan, and Adolph E. Ibershoff, M. D., Instructor in the University of Michigan. Philadelphia: Boerjcke and Tafel, 1906.

This little work is the outgrowth of a conviction that a practical treatise on Refraction divested as much as possible of theoretical considerations would be welcomed by the beginner in ophthalmology as a stepping stone to a more comprehensive knowledge of the subject. We believe that such a need existed and that it has been well supplied by the present volume. The book is written in very readable English and is plentifully illustrated with cuts and photographs. While such a work will serve as a guide, it must not be forgotten that the art of refraction can never be learned out of a book, but can only come as a result of months or years of painstaking work with patients.

LEHRBUCH DER FRAUENKRANKHEITEN. Von Dr. Hermann Fehling, Professor der Geburtshilfe und Gynaekologie in der Universitaet Strassburg. Dritte, voellig neu bearbeitete Auflage. Mit 229 Abbildungen. Verlag von Ferdinand Enke. Stuttgart. 1906. Mk. 9.00.

Fehling, the author of this volume, is one of the foremost exponents of gynecology in Germany. His textbook, which has just appeared in its third, thoroughly revised edition, furnishes convincing proof that he must be also a teacher of unusual ability. With justifiable pride he states in the preface of this edition, that he again has succeeded in reducing its size. This, in spite of the fact that he had to include into this new volume an account of all the more recent advances especially in operative therapy. He has succeeded in his task simply by eliminating all that which, in his opinion, has become antiquated. This certainly is a due appreciation of "the needs of the student and the busy practitioner," which we so often find mentioned in the preface of our own textbooks. A very careful perusal of this excellent presentation of gyhecology is recommended not only to the student and the practitioner, but also to every prospective writer of a textbook.

THE PROPHYLAXIS AND TREATMENT OF INTERNAL DISEASES. By F. Forchheimer, M. D., pp. xvii+652. D. Appleton & Co., New York and London, 1906.

Of text-books of medicine we have more than enough. Most of them are in great part compilations, taking up etiology, symptomatology, diagnosis and treatment in routine order and what you find in one, you will pretty completely find in all the others. Forchheimer's book is, however, of quite a different sort. As the title indicates, he confines himself entirely to prophylaxis and treatment, not even referring to other aspects of disease, and this enables him to cover his subject completely and in great detail within the compass of one not too bulky volume. His therapeutic directions are quite evidently not based on the results of others, but upon his own personal experience. This gives the book a directness and a charm that is not often found in our American medical text-books. Thus the dietaries in the various metabolic disturbances, on which the best work has been done abroad, are not based on the European customs in regard to food, but upon our American habits of life. The book will be found practically useful as well as delightful reading and can be unreservedly commended.

A NURSE'S HANDBOOK OF MEDICINE. By J. Norman Henry, M. D., pp. xii+268. J. B. Lippincott Company, Philadelphia and London, 1906.

This book comprises the substance of lectures delivered by the author to the nurses of the Philadelphia Hospital. It contains such information on medicine

as is suitable for nurses with general instruction regarding the care of the sick, receipts for the diet kitchen, personal and general hygiene and the like. An index would have added to the usefulness of the volume.

WALTER REED AND YELLOW FEVER. By Howard A. Kelly, M. D., New York. McClure, Phillips & Co., 1906.

Kelly's book, inscribed to Carroll and to the memory of Lazear will remain an impressive monument longer than the pillar of stone to be erected in honor of the prematurely deceased Reed. The book is not a simple story of the life and work of the great discoverer; it is that and at the same time a monograph on yellow fever, summing up and criticising all our knowledge about the disease. The very important advances in our knowledge of this disease during the last few years is the result of the work of Reed and the men to whom the book is inscribed.

Kelly has chosen this way of glorifying the dead, not by simple praise, but by showing in a systematic and logical manner the immense importance of the work of Reed and his associates on the possibility of eliminating one of the most serious scourges of mankind. The book is beautifully written, shows deep feeling and appreciation, and contains material that will for all time be a source of information and reference. It should be read widely by the educated classes of our people.

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ORIGINAL ARTICLES.

THE IMPORTANCE TO THE SURGEON OF A STUDY OF ANATOMICAL APPEARANCES IN THE LIVING.*

BY MAURICE H. RICHARDSON, M. D.

Professor of Clinical Surgery, Harvard University; Visiting Surgeon to the Massachusetts General Hospital.

To men who are working at the operating table my remarks will, I am sure, appeal more strongly than to those who have not been impressed by the importance, and often the difficulties, especially in critical abdominal cases, of making an immediate anatomical diagnosis. The laboratory student, seated at his well-lighted table, with his microscope at hand, his thermostat near by, his animal room, his instruments of precision, his associate workers readily accessible,—may at his leisure establish his premises and deduce his diagnosis. The surgeon—carrying the whole responsibility of life and death, of anæsthesia, of operative technique, of assistants, nurses, gauzes, and heaters, in a word, of his patient's comfort and life and of his own professional reputation—must make on the spot, from the evidence of his unaided senses, a diagnosis upon which depends the nature of his operation and its immediate and remote success. And yet the surgeon has the inestimable advantage of seeing things as they are in living physiological and pathological activity. He sees them, moreover, in their undisturbed relation with each other.

Not many years ago I was asked to operate for intestinal tumor upon a man of 57—well nourished and rather stout—upon the condition that under no circumstances was an artificial anus to be made. A surgeon is foolish to operate under conditions of any kind: if he is not trusted to do the very best he knows, unhampered, he had better decline to operate. Be that as it may, I explored a mass in the left abdomen—adherent, infiltrating, and (as it seemed to me) hopelessly malignant. This examination was wholly extra-peritoneal. The exploratory diagnosis confirmed the medical diagnosis. Later, for the relief of complete obstruction, I made an anastomosis between the *caput coeci* and the sigmoid flexure, which up to the patient's death, a year or two later, worked well. At this

*Read by invitation before the St. Louis Surgical Society, May 25, 1906.

operation the exploration was wholly intra-peritoneal, and confirmed the previous diagnosis. At the autopsy the eminent pathologist, at his leisure, in the full light of day, with everything at hand to prove or disprove his diagnosis, pronounced the intestinal cancer which he found the most favorable case he had ever seen for resection and cure.

Although always willing to admit myself mistaken, and desirous of knowing the truth, I declined, and still decline, to accept the pathologist's verdict as to operability; for that is a question which can be decided only by the surgeon who performs the operation, and who alone knows the patient's condition and what he will bear. The mass in this case was infiltrating, and the tumor was inoperable.

Though an exact diagnosis under circumstances such as I have just mentioned is difficult and often impossible, it nevertheless seems to me extraordinary that operators should make so few mistakes, as shown by microscopic examinations, without which confirmation no diagnosis of cancer is nowadays accepted. After thirty years' experience in the treatment of breast tumors, a surgeon's opinion as to the nature of the growth becomes almost infallible, especially in the diagnosis of cancer. Indeed, his diagnosis of malignancy based upon his interpretation of gross appearances alone would be to me more valuable than the diagnosis of a less experienced observer based upon the microscopic findings alone. I should never think of saving a breast when, in a doubtful case, the *tactus eruditus* said *malignant*, and the microscope said *non-malignant*. And yet, even in the accessible, well-lighted field of mammary diseases one is often mistaken in his views of malignancy and non-malignancy, operability and inoperability. Errors in diagnosis are without danger only when the benign tumor is called malignant, and the breast is therefore sacrificed. Too often is the malignant tumor called benign, and the patient, in the security of a false prognosis, allowed to drift into a hopeless condition. In doubtful cases generally the worse rather than the better prognosis should indicate the appropriate operation, especially when the operation, like a breast extirpation, if later proved unnecessary, is a safe one.

As an example of the other extreme, take those enlargements of the pancreas met with in exploration of the biliary tract, especially when there is jaundice. The essence of the whole case is a correct distinction between an impacted gall-stone and an enlargement of the pancreatic head, either malignant or benign. On the one hand is cancer of the pancreas—an inoperable and hopeless disease; on the other an impacted gall-stone or a chronic pancreatitis—both brilliantly curable. The exposure and section of the pancreatic mass necessary for exact diagnosis cannot be made without grave danger. Between these possibilities the surgeon must decide immediately, often without any but the hastiest palpation; for he must make up his mind whether to continue or to

abandon his operation; whether to explore the pancreas and the common duct, to drain or extirpate the gall-bladder, or whether without further delay to close the abdomen. His patient's life and future depend upon an accurate interpretation of the anatomical conditions found; aided by a previous thorough study of the case.

I have been especially interested in this subject now for ten years: the importance of it has been impressed upon my mind by hundreds of cases, particularly abdominal ones. In my clinical teaching at the Harvard Medical School I urge upon the students the importance of familiarizing themselves with evidences of disease as interpreted by the senses, especially at the operating table.

The method of procedure in surgical operations depends, of course, in every case upon the diagnosis. If the diagnosis is made before operation, it is frequently wrong, as shown by the very first incision; and this in spite of the greatest knowledge, skill, and experience, with every aid that the laboratory affords. Take again, for example, breast tumors. The diagnosis is made beforehand with great accuracy, and this diagnosis is verified or disproved by the microscopic laboratory report and by painstaking investigation. The number of errors in diagnosis though small—I have found after an experience of nearly a thousand breast operations—is yet large enough to show that there is no absolutely sure and safe way of making a diagnosis of breast tumors before operation. Though we are able to demonstrate the presence of cancer, for instance, if the specimen removed by the knife or by the punch includes a characteristic section of the tumor, our diagnosis may be entirely wrong if for any reason the exploration does not reach a characteristic portion. In such cases deplorable and preventable errors in diagnosis may result; for the surgeon relies upon a section which did not find the tumor itself, and the patient goes without operation until there is a hopeless cancerous infiltration. Another disadvantage in this method is that if a free section of the tumor is made immediately prior to the removal, there is danger of extensively infecting the wound with the disease. Hence the importance, in the removal of breast tumors, of knowing at a glance the probable nature of the growth.

In explorations of the stomach the surgeon may easily be deceived as to the nature of the tumor which he finds, and either subject his patient to a needless operation or refuse him an urgent one. Unlike the extirpation of breast tumors, unfortunately, that of gastric tumors, in the hands of the average operator at least, is extremely dangerous. A few years ago I resected the pyloric end of the stomach for stenosis which was found on exposure to be caused by a hard, irregular mass confined to the stomach wall. In my opinion this was clearly malignant. The microscope, however, showed the mass to be the result of an old ulcer and, beyond dispute, benign. The operation of choice was a gastro-

enterostomy; the operation indicated and performed under the wrong diagnosis was resection and suture. Death was the result of too great tension on the suture line, which gave way suddenly during a favorable convalescence. Here is a case which illustrates better than any other the importance of familiarity with the characteristic *living* and *undisturbed* abdominal pathology. The experience gained in this one case has prevented other errors quite as bad. In abdominal cases the difficulty in making a diagnosis upon which the progress of the operation entirely depends is at times almost insuperable. The importance of making it correctly is great in all cases, but it is greater in some diseases than it is in others; for some organs, like the appendix, should be removed when the anatomical changes are trivial; whereas others should be preserved—for example, the ovaries—unless the evidence of disease is conspicuous and unmistakable.

Thus far in the development of abdominal surgery, especially gastric, the diagnosis, when operative treatment has been first seriously considered, has been clear, for the disease has progressed to such advanced stages that its nature has been unmistakable. But in modern surgery we are, fortunately, no longer waiting until the diagnosis of cancer, for example, is stamped upon a man's very complexion: we are attacking diseases at their inception. Indeed, we are daily removing organs in which there are few if any perceptible anatomical changes. Though some of this work is undoubtedly unnecessary and to be condemned, most of it is praiseworthy. In order to avoid, on the one hand, the errors of over-hasty operating, and on the other, those of pernicious procrastination, we must, first, make an early diagnosis to justify exploration; and secondly, have an intimate acquaintance with anatomical appearances during life to indicate the appropriate operation. And yet, however great one's experience, there will always be some doubt as to the significance of physical appearances, even when the organs are fully exposed. The surgeon will reduce this doubt to a minimum only by devoting himself, on every possible occasion, to the study of normal and diseased organs and their connection with previous symptoms. He will be especially careful to study histories in convalescent patients, after demonstration of their lesions, just as he will be careful to study anatomical conditions after a thorough investigation into their histories.

And, after all, what does the operator want most to know as he exposes the field of exploration? Not so much the physical conditions of disease in advanced stages, as those of disease in its very inception. He must interpret correctly delicate as well as gross changes. Many questions will arise which will more than test his knowledge.

What, for example, is a diseased appendix, and what is a diseased gall-bladder? In what consists the difference between gastric cancer and gastric ulcer, especially between the early stages of the former and

the late of the latter? What is the meaning of a pylorus which between the thumb and fingers suggests a neoplasm, but which, on being incised, shows nothing? Is it a physiological thickening; a muscular contraction; a vascular engorgement dependent upon its being alive; an evidence of normal physiological activity which disappears and is never felt in the cadaver? I admit my ignorance of a true explanation. How does a diseased pancreas feel? In what way does a chronic pancreatitis differ from cancer of the pancreas? How shall we be able to distinguish between a gall-stone embedded in the canal of Wirsung and not obstructing the biliary stream, and a tumor of the head of the pancreas. No one but the surgeon can appreciate the feelings of the surgeon when he is confronted with problems like these. For example, I once found, at an exploration of the biliary tract for painless jaundice, a stone about the size of a filbert (in other words, about the size of an ordinary gall-stone) in the head of the pancreas. I examined repeatedly, and asked my assistant to examine, in order that we might tell, if possible, whether this was a malignant nodule in the pancreas, a gall-stone obscured by embedding tissues, or a localized area of thickening such as is usually regarded as chronic pancreatitis. If it was a gall-stone, removal was demanded; if cancer, attempt at removal was unjustifiable; if chronic pancreatitis, drainage of the biliary passages was indicated. It was decided that the nodule was malignant, but that there was a hopeful possibility that it was only a chronic pancreatitis. To relieve the jaundice and the possible pancreatitis, a cholecystostomy was performed. The patient did well till, at the end of two or three days, he began to bleed from the depths of the wound—a complication of jaundice, in my experience almost invariably fatal. The anxiety about the diagnosis became even greater than before, for if the lesion were a gall-stone, nothing had been done to remedy it, and the patient was dying of a useless exploration. At the autopsy there was found in the pancreas a nodule of cancer which completely obstructed the common duct. The family were perfectly satisfied by the assurance that nothing would have remained for this vigorous, active man, had he lived, but a lingering death, with sufferings aggravated by a permanent biliary fistula.

In one of my early cases of chronic pancreatitis, I made the hasty diagnosis of cancer of the pancreas from the enlarged and irregular head of that viscus. As there were gall-stones in the gall-bladder, I performed a cholecystostomy. Mayo Robson, to whom I described the case soon after, suggested a chronic pancreatitis—a diagnosis which was proved correct by the complete and permanent recovery of the patient.

Another illustration of the difficulties of making a correct diagnosis is that of a patient who died of uncontrollable nose-bleed after an exploration of the biliary tract and of the liver. One of the assistant surgeons at the Massachusetts General Hospital had found in the right

lobe of the liver what seemed to be a malignant mass, and therefore closed the abdomen. As the jaundice in this case continued after operation, it seemed to me that there might have been a remediable mechanical cause, which a secondary exploration would relieve. Prolonged and painstaking study of this case—before, during, and after operation—never gave even a hint of the real lesion which autopsy, after death from uncontrollable nose-bleed, showed to be an hypertrophic cirrhosis. What greater responsibility could have been thrust upon a surgeon, even the most experienced, than the interpretation of the anatomical appearance in this case?

As in the liver, so in the spleen—though far less frequently—it may be of the utmost importance to interpret correctly the size, shape, consistency, color and lustre. Without examination of the blood the diagnosis of splenic tumors will be made only with the greatest difficulty, not only from the lack of characteristic appearances, but from the rarity of splenic tumors. I have published one splenectomy which I performed for splenic tumor without blood examination—a case in which the diagnosis proved, from examination of the blood, leukaemia. A tuberculous spleen has gross appearances sufficiently marked for diagnosis, but in my cases it has been associated with general peritoneal tuberculosis. The appearances and the feel of the spleen in typhoid cases operated upon under mistaken diagnoses may be of value, especially in the early stages.

So in the surgery of pelvic diseases the surgeon must be able to distinguish between malignant adenomata of the uterine body and degenerated polyps; between anæmic fibroids and uterine sarcomata; between malignant and benign affections of an ovary but slightly enlarged; between a normal and an abnormal pregnancy; between pregnancy and all other pelvic conditions.

The study of pathological conditions in the dead has an educational value which can hardly be overestimated; opportunities for such study should never be neglected; but it is upon the study of the living that the surgeon must chiefly depend in making those nice distinctions which are based upon the color, the shape, the consistency, and the lustre of organs just as he sees them at the time of operation. Even the sense of smell may prove a valuable guide to him. The odor of an abscess caused by a gangrenous appendix, for example, is so characteristic that when the abscess is situated in the epigastrium, between the liver and the diaphragm, in the depths of the subphrenic space, or even in the pleural cavity, its possible appendicular origin is immediately suggested. Time and again I have been led to the correct interpretation of the lesion by this sense alone.

In the determination of a peritonitis, and in the search for the correct lesion, we find of the greatest importance the color of the intestine, its

distention and distensibility, its translucency and transparency, the color, consistency, and odor of the free peritoneal fluid.

A correct diagnosis of peritonitis, or at least a determination of a strong probability of infection in its early stages is invaluable, for upon it depends the selection of operative measures. The most distressing calamities of abdominal surgery—because the most frequent, and, theoretically at least, the most avoidable—are the fatal peritoneal infections. I am convinced that these evil results are in reality avoidable, but whether humanly avoidable, I am not so certain. When in a series of similar operations, hysterectomies for example, performed under similar conditions upon the same day—with the same operator, assistants, instruments, *matériel*, and environment—the case which is perhaps the most favorable of all proves fatal from peritonitis, it is a fair question whether in the fatal case there were not elements of infection in the pathological condition itself which were undiscovered and unsuspected. It is a question, too, whether a greater experience in such cases, studied from the point of view of this communication, might not have detected and avoided the danger.

In acute abdominal conditions the recognition of general peritoneal infections is essential to settle the question of drainage, unless one does not believe in drainage for general peritonitis. I look upon drainage as so essential in general peritonitis that I drain even when there is only a probability of infection. And yet drainage has such disadvantages—through adhesions, intestinal obstructions, sinuses, fæcal fistulæ, and other minor evils, that it should be employed as sparingly as possible. Between drainage and non-drainage in cases of suspected infections the choice is overwhelmingly in favor of drainage, in spite of its disadvantages.

Nothing can be more characteristic than the anatomical appearances of a peritonitis under full headway; nothing less characteristic than one just beginning. Even when there is a turbid serum with injected peritoneum, the cultures often prove sterile. I am inclined to think that an infection is sometimes present in serious form with few, if any, visible changes in peritoneum or peritoneal fluids.

In regions other than abdominal the necessity for an absolutely accurate diagnosis is emphasized. In many diseases, exploration is indicated and radical operation demanded even if the exact diagnosis is in some doubt. When operation sacrifices a limb, a feature, a useful organ—the thigh, the eye, the testicle—the horrors of mistaken diagnosis and the importance of accuracy become manifest.

In a disaster of this kind—in the responsibility for which I shared—a patient lost the left lower extremity through an error of diagnosis. It was a question of amputation at the hip joint for osteo-sarcoma of the femur. Many surgeons concurred in the diagnosis, but there was some

doubt. This was before the days of the X-ray, and the case was studied perhaps even more carefully on that account. The disease proved to be benign: the operation was therefore not essential to life. Perhaps little harm was done, for the femur was of no real value in standing or walking. The operator—a man of strong conservatism, of the best judgment and the highest skill—amputated. The tumor had every gross sign of malignancy, and yet it was not malignant.

The lesson in this case, and in similar cases involving the extirpation of valuable organs, is to make a section for microscopic examination, in spite of the dangers of auto-infection; for in such rare tumors gross signs are not observed frequently enough to make the diagnosis positive.

A more accurate idea of the tumor may be gained by careful dissection of the tumor, with free exposure to sight and touch, and with thorough search for infiltrations and metastases. Unless the tumor is actually cut into, there is little danger of auto-infection. Sometimes the nature of a doubtful abdominal tumor can be told, especially when the abdominal wall is thick, by cutting down as far as the peritoneum without opening it. When separated from the fingers only by the peritoneum, the tumor can often be immediately diagnosed, and that without the danger of opening the peritoneal cavity. The distended gall-bladder can often be felt as soon as the abdominal wall has been cut as far as the peritoneum—without opening of the peritoneal cavity. One is sometimes brought into the closest relation with the lesion, and yet separated from it by a thin layer of tissue sufficient to mask its nature or even its presence, when a slight extension of the cut, or the safest possible dissection, would strike at once the disease.

In one instance failure thus to demonstrate the diagnosis in a perfectly curable case led to an unnecessary operation, to months of intense suffering, and a painful death. In this case the patient had an enlarged prostate, to which was referred his great suffering. Repeated searchings of the bladder by the ordinary means showed no stone. The treatment for this disease then in vogue gave little relief. Finally, arose the question of operation by castration or supra-pubic cystotomy. I had become so favorably impressed by the precision, certainty, and efficacy of the supra-pubic route to the bladder that I had already had the patient placed in the Trendelenburg position, and stood knife in hand ready to make the incision. Something, however, unfortunately, changed my mind, and I decided upon castration; and yet, as I hesitated between castration and supra-pubic cystotomy my knife blade was separated from a large stone encapsulated in the superior wall of the bladder only by the thickness of the abdominal wall. The man improved after castration enough to help swell the favorable record of that miserable procedure; but the improvement was only temporary and he died at the end of a few months after great suffering. It is a question whether in this case a diagnosis

without exposure of the field was possible. But the lesson is that, under certain circumstances, the importance of anatomical appearance *demands* an exposure of the field; and, indeed, of the supposed lesion, whatever the diagnosis, especially when that exposure is one of the steps of the radical operation.

In this case the possibility of stone was from the beginning considered. The error lay in relying upon the absence of grating transmitted to the sense of touch through the sound. This patient had a lesion that would have been unmistakable had the bladder wall been brought within reach of the finger; but the enlarged prostate seemed so adequate a cause for frequent painful micturition that the possibility of a stone was, if not overlooked, disregarded. The error belongs to a large class, dependent upon a strong preconceived idea. The lesson is to beware of being too positive in an apparently simple diagnosis, when every confirmatory method of examination has not been employed. In bladder cases especially one should not neglect cystoscopy when there is the least doubt, especially if the alternative is a dangerous or a mutilating operation.

*This paragraph I wrote on the train on my way to the Milford Hospital, where I was to operate for enlarged prostate upon a patient whom I had never seen. At the operation I found a hard, irregular prostate which suggested cancer. The man was in good condition. He assured me that his suffering was so great that life was not worth living. Having the case just mentioned strongly in mind, I was determined to be sure of the condition of the bladder by supra-pubic incision. On the left side of the bladder was a large ulcer, soft and bleeding. A small fibroma obstructed the free outlet of the bladder. There were several nodules in the prostate. The main trouble was, however, this large ulceration. The hemorrhage was excessive and difficult to control. I curetted extensively the ulcer after exposure and left in three gauze wicks and a large tube for drainage. On reflecting upon this operation I suddenly realized that I had not employed one of the safest and easiest means of diagnosis—cystoscopy, the results of which might have contra-indicated the operation. I was satisfied, however, that I had given the man the best chance, for this demonstration gave me the very best opportunity of making the diagnosis and of remedying the lesion; and yet the anatomical appearances were far from characteristic. The irregularities in the prostate—judging by the fibroma which I removed—may have been multiple fibromata, for the prostate felt exactly like a small uterus with here and there a subperitoneal fibroid. The ulceration of the bladder had none of the characteristics of cancer: it was simply a superficial ulceration. The laboratory report was, however, *cancer*.

Even with the cystoscope the diagnosis is uncertain. I have several times had occasion to doubt the conclusions of an expert, and have proved by supra-pubic cystotomy his error. It seems best, therefore, especially in doubtful cases, to employ in the beginning the only method which is unerring—that which permits the direct, unimpeded employment of the senses of touch and sight. This course is especially desirable when the results of cystoscopy are discouraging, as when cancer of the bladder is thus diagnosed.

The anatomical diagnosis in the great majority of cases simply confirms to a surprising degree the clinical. In some lesions the precise diagnosis must be regarded as a guess rather than as an inference correctly drawn from accurate data. Considering the difficulty of establishing the premises, it is indeed astonishing that the inferences, or even the guesses, are so unerring. In those internal diseases in which the diagnosis depends very largely upon a correct interpretation of the history and in which there are few, if any, physical symptoms, the percentage of errors is the largest. The surgeon who demonstrates upon the living the direct connection between symptoms and anatomical conditions, must sooner or later make the most accurate diagnostician,—just as in the past the clinician whose education has been based upon normal and abnormal anatomy has made the most accurate observations and the most correct deductions.

Of all abnormal internal abdominal conditions I find the fewest mistakes in the diagnosis of appendicitis; next, in that of gall-stones; and last, in that of diseases of the epigastrium. The nearer we can approach the disease with the fingers, the smaller the number of mistakes. Hence the extraordinary accuracy of deductions in pelvic disease. But even in a field so accessible to bimanual palpation as the pelvis, I find by no means infrequent such errors of diagnosis as the confusion of an ovarian cyst and a fibroid tumor; of a normal and an abnormal pregnancy; of a salpingitis and an appendicitis. Most of such errors are owing to rigid abdominal walls. I have often corrected a false diagnosis the moment the relaxation of anæsthesia has been complete. Hence the importance of renewed bimanual examinations before making the incision.

In my introduction I have mentioned several cases which show the weight of responsibility resting upon the surgeon, who has to decide upon the spot the nature, the extent, and the operability of the lesion demonstrated. This responsibility can hardly be appreciated by those who have never borne it. Upon the correct interpretation often depends not only the welfare of the patient, but, in many instances, the reputation of the surgeon.

Of late years I have taken the opportunity presented by abdominal operations to ascertain as correctly as possible, for the benefit of the patient, the condition of all abdominal viscera. Information of this kind, to be of value, must be based upon the surgeon's ability to detect, with his fingers alone, any variation from the normal. Some lesions are easy of detection; others are difficult; still others, impossible. The surgeon must be as sure as possible of his diagnosis before committing himself to a definite opinion, especially of serious disease or of absolute hopelessness. He has no right, therefore, to inform the patient or his friends of the existence of abnormal conditions which he thinks he has discovered, but of which he does not feel absolutely

certain. I have become convinced, for example, by a very large number of manual explorations of the right kidney, that, in the average patient, the lower edge of the kidney can easily be brought to the brim of the true pelvis. I should not, therefore, feel justified in telling a patient that she had an abnormally movable right kidney from this mobility, because, as I say, in most patients it seems to be the normal. Observations upon the mobility of the kidney at the autopsy table are, of course, of no value; for the solidification of the paranephric fat prevents any mobility whatsoever. I should not feel justified in saying in a given case that the disease was cancer, or that the outlook was hopeless, unless the evidence was incontestable. Even in evident cancer and probable hopelessness, one has no right to predict to a patient or to his friends an absolutely irremediable lesion. Such predictions have caused much useless suffering. The experienced surgeon, even in the strength of his conviction, must base a ray of hope upon human fallibility. I have seen so many errors of diagnosis, especially as to hopelessness, that I feel strongly upon this point. The following case is illustrative not only of this but of other points of this paper:

In the case of Mrs. X. (Vol. 49, p. 51), I performed a hysterectomy at the Corey Hill Hospital for multiple fibro-myoma (Dr. W. F. Whitney). Later my assistant explored for apparently a recurrent tumor. He found what he supposed to be hopeless malignant infiltration of the deep pelvis, and he so reported to the family. A few months later I saw the patient and on bimanual examination without ether was unable to find the least abnormality. The patient recovered, and upon her recovery has been based a cancer cure which is spreading now over the whole country! The remedy advertised to have cured a patient who had been given up by the surgeons was used by its inventor from the moment of hopeless prognosis; and if the diagnosis of hopeless cancer, based upon gross demonstrations alone, was correct, the patient's condition, now two years later, is indeed remarkable.

In the interpretation of gall-bladder appearances so many difficulties will be met with that the surgeon may well repeat the question, "What is a normal and what an abnormal gall-bladder?" In apparent health the gall-bladder, undisturbed, is hard to find with the fingers; distended, it is characteristic to the touch. A lax gall-bladder, hard to find, is, I think, normal. The distended gall-bladder is also normal if pressure empties and softens it. The sensation of beginning collapse under the pressure of the fingers is characteristic and recognizable. It means an open cystic duct and a normal gall-bladder, stored to its utmost capacity with bile. Yet distention is a conspicuous condition of diseased gall-bladders. To distinguish between the distention of a normal and of a diseased gall-bladder is difficult; but I think it can be done by the edu-

cated fingers alone. A gall-bladder so tense that the fingers make no impression upon it, is undoubtedly abnormal and has a stone impacted at its outlet or in the cystic duct. There may be one or more stones imperceptible to the touch, because the fingers cannot be brought together against the resistance of the distended gall-bladder walls. In a recent case (Vol. LXII., page 57) I was unable to feel a small stone through the thickened, but not otherwise changed gall-bladder wall until the gall-bladder had been 'drawn outside the abdomen! Stones in the pancreas, or high in the fissure of the liver, are so difficult of detection that one can never be sure either of their presence or their absence. Even by means of a sound introduced into the hepatic duct, the operator cannot be certain that he has not overlooked a stone. When the experienced touch detects a gall-stone, elsewhere perhaps than in the pancreatic portion of the common duct, there can be, I think, no possibility of mistake.

From the gall-bladder and ducts, the examining hand seeks the pylorus, the stomach, the liver, the spleen, and the pancreas. From my own experience I should say that the pancreas varies so extremely—especially as to size and consistency—that deductions of value are very difficult to make; yet there is no excuse for inexperience in palpating the pancreas, for the education of the touch as to its condition can be made nearly if not quite as well on the dead body as it can on the living, the only difference being in the absence of vascularity.

These remarks apply also to the pylorus. Through a characteristic cancer of the pylorus or of the pancreas is unmistakable, beginning malignancy is not. I admit my own inability to tell always on the living body what is and what is not a strictly normal pylorus. This was first impressed upon me by an operation some ten years ago. The case was one of Dr. Fitz's, and there was a strong suspicion of disease of the pylorus (O. R., Vol. 24, page 48.) After thorough digital examination, it seemed to me that there was an abnormal growth in the pylorus. There were also extensive adhesions about the pylorus, gall-bladder and liver. I could not assure myself of the necessity of opening the pylorus, but I separated thoroughly all adhesions. The patient was much benefited by this operation, and his subsequent good health proved the absence of a neoplasm.

If it is difficult to tell by the sense of touch alone the condition of the pylorus, it is equally difficult to tell that of the body of the stomach and of the cardiac end. I refer, of course, not to those conditions of the stomach in which disease is unmistakable, but to those in which there is a question of disease, and in which the anatomical changes are not pronounced. The greater portion of the stomach, both anteriorly and posteriorly, can be exposed to sight through the high abdominal incision. In many cases a large portion can be drawn out of the abdominal wound.

where it may be thoroughly examined. In some cases it is justifiable to make an exploratory incision through the stomach wall in order that the internal surface may be touched and inspected. The posterior wall may be demonstrated through the omentum.

I have observed not infrequently two variations from what I conceive to be the normal stomach—variations in position and in vascularity. The stomach is so often below the umbilicus, even with the patient in the Trendelenburg position, and without gastric symptoms either before or after operation, that I have wondered whether so low a position had any significance—pathological, physiological, or anatomical. Is a stomach thus situated dilated, displaced, or in any way pathological? Does it indicate any mechanical measures when met with unexpectedly? Does it justify interference, as does a diseased appendix discovered accidentally? I have deemed my duty done when I have recorded the facts and upon them have based renewed inquiries into the history.

A second condition is that of excessive vascularity. In a recent hysterectomy for uterine fibroid in a woman of 68 (Vol. 62, p. 59) the stomach was large, full, and pink; the superficial arteries were injected and the whole organ extremely vascular. There were gall-stones in the gall-bladder and some adhesions. Vomiting had been a conspicuous symptom, and there had been pain. Operation upon the gall-bladder and the pylorus, after a hysterectomy upon a patient of 68, seemed to me injudicious. What was the lesion, if any, and what ought I to have done?

A third condition is that of firm distention, even after the dietary preparations for anaesthesia. This distention is one which suggests to the touch the unyielding distention of the gall-bladder already mentioned. I think it has no pathological significance, for the operations during which it was discovered were in no way complicated by gastric symptoms.

By examination of the pancreas, the pylorus, the cardia, the whole abdomen, at every autopsy, the surgeon can educate to great perfection the sense of touch. The most that can be said of the examination of abdominal viscera taking place during abdominal operations—examinations which must necessarily be brief—is that gross changes from the normal can thus easily be detected; after long experience a slight abnormality can with considerable accuracy be determined.

The diagnosis of diseases of the gall-bladder or of the biliary tract dependent upon gall-stones is in many cases so plain that we undertake operation with great confidence. Given the characteristic pain of gall-stones, followed or accompanied by a tender or perceptible gall-bladder; with a history extending over a number of years; without cachexia, loss of weight, or other evidence of malignant disease,—one can be so positive in his diagnosis of gall-stones that the question of exploration for anatomical diagnosis need hardly be considered. And yet, even with so characteristic a history and physical examination as this, the surgeon

will now and then be surprised to find that the case is not one of simple gall-stones, but one of advanced and extensive infiltrations, so suggestive perhaps of malignant disease that the question becomes one of abandoning as hopeless an operation which, if the diagnosis of gall-stones is correct, is essential to life.

Now if we may find such extensive pathological changes when the history and signs indicate operations of ease and safety, what may we not expect to find when they indicate operations of difficulty and danger? The fact is that we shall find operations of ease and safety when we expect difficulty and danger quite as often as we shall find difficulty and danger when we expect to find ease and safety.

When gall-stones formed in the gall-bladder first begin to cause symptoms; when operation promises the best results with the least danger,—the diagnosis of gall-stones is dependent upon a history so obscure and so far from characteristic that the operation is undertaken with many misgivings as to its real necessity. Indeed, were it not for the almost invariable accuracy of the diagnosis, even in these cases the surgeon would hardly feel justified in exploring the right upper quadrant as often as he does. He seldom errs as to the cause of symptoms, though he may underestimate the extent of the pathological changes and the risks of operation, for even in the cases thus far regarded as atypical and obscure, gall-stones overwhelmingly exceed in frequency all other lesions combined. The diagnosis of gall-stones, however, resting as it does almost invariably upon pain in some form, with no confirming physical signs, can be demonstrated only by actual digital exploration. The detection of gall-stones, essential as it may be to the selection of operative methods, is much less important and less difficult than the demonstration of their absence.

In exploring the right upper quadrant the surgeon opens the abdomen by an incision just large enough to admit a finger, by which in most cases, fortunately, a gall-stone is found in the most favorable position for its removal—in the gall-bladder itself. In not a few cases, however, a single finger cannot thus detect a stone in the gall-bladder, even if that viscus is loose and soft. Indeed, in many of his cases the surgeon will find, with the single finger, no evidence of gall-stones anywhere in the biliary tract. This fact does not, however, show that there are none: it shows simply that the surgeon cannot, with the single finger, eliminate the possible presence of a gall-stone. Two fingers—the first and second—are then introduced. Between these two fingers—practiced in this exploration—he can get the lower part of the gall-bladder, the cystic duct, the hepatic and common ducts. He may then detect the gall-stone which he could not detect with the single finger. If he feels no stone, the incision must be enlarged sufficiently to admit the whole hand. This enlargement of the incision has the serious disadvantage of causing

injury to the motor nerves of the right upper quadrant and of increasing the liability to hernia, which is quite common in this region. In spite of this disadvantage, the necessity for absolute demonstration, especially of the absence of gall-stones, demands the manual exploration. Even when gall-stones are demonstrated in the gall-bladder with one or two fingers through a small incision, the experience of recent years has led me to fear that there may be also one or more stones in the hepatic and common ducts, in spite of the absence of jaundice. It is only in the earliest, simplest and plainest cases that I do not make a cut long enough to admit the hand. As a matter of routine, however, the long incision will in most cases be used. The hand seeks first the foramen of Winslow, as the starting point. It thence proceeds toward the liver and hepatic duct, the gall-bladder and cystic duct, the pancreas and the common duct, and finally, the duodenum and the pylorus. The not infrequent discovery of an unsuspected stone which would otherwise be overlooked will abundantly reward the trouble of search. Even after the most painstaking palpation the surgeon will occasionally overlook a stone high up in the hepatic duct. Stones in this duct may often be undetected; those in the common duct or in the cystic are never undetected. To be as sure as possible, the surgeon must open the hepatic duct and explore with probe or forceps, or wash out under pressure through a soft catheter. Even with these precautions, a stone may escape detection.

There may be, as I have explained, a nodule in the pancreas which will suggest an embedded gall-stone. This fact will not escape notice.

Do I need to say a word about the necessity for the most careful education of the fingers in this task? Palpation upon the dead is quite as instructive as upon the living, and the chance for complete verification is always at hand. There is no excuse for ignorance on the part of any one—physician, surgeon or student; and yet how much time is devoted to this special form of clinical instruction? Very little, I am sure. It is a method of instruction that ought to be followed on every occasion. Every autopsy could be utilized to instruct in palpation a hundred students. By making the appropriate incision, the normal tactile impressions of every abdominal area could be taught time and again, and still again, until the student would have an idea of abdominal palpation which would be of the utmost value.

The usual course in abdominal examinations should be, first, a small opening for digital exploration. In many cases a single finger suffices for a diagnosis of inoperability. The danger in the examination depends upon the amount of stirring up the exploration causes, upon the nature of the disease, and upon the patient's strength. I have known of not a few deaths from the touch of a single finger. When the hand and arm are introduced, the danger of an exploration which accomplishes nothing beyond a demonstration of hopelessness or inoperability, is con-

siderable. Once the exploration is undertaken, it must be made thorough, in spite of the dangers. In most cases, therefore, the single finger will not suffice.

Inspection may add the lacking evidence when touch has revealed a lesion, but has not shown its exact nature. Even when touch is negative, variations from the normal may still be perceptible to sight. Within the last year in not a few cases I have found in the gall-bladder and in the bile changes which accounted for symptoms supposed to be caused by gall-stones. These abnormalities were variations from the normal gall-bladder in color and in translucency, but not in consistency, size, or shape. The changes in color and translucency led to exploration of the interior. In all cases the bile was thick, tenacious, and black. Changes from the normal were owing to a chronic inflammation of the gall-bladder, with so-called inspissation of bile—a condition of things which, I have no doubt, precedes—in many cases, at least—the formation of gall-stones. Drainage was followed by brilliant recovery.

When digital and manual exploration is completed, especially when the results of tactile examination are uncertain, the field should be carefully inspected. Changes in color, lustre, vascularity, translucency, and in general appearance will at once be conspicuous, as will also be anatomical changes, either imperceptible to touch or uncertain as to existence or extent—such as soft adhesions to pylorus, duodenum, or colon; reflexions of peritoneum between gall-bladder and liver, gall-bladder and duodenum. The situation of stones, whether in the cystic, hepatic, or common duct, will occasionally be impossible of detection by touch alone, as when a stone is caught immovably but not tightly in the cystic duct near the common and hepatic.

There will be, finally, the evidence of the eye added to that of the touch to discriminate between normal and abnormal distentions, thickenings; between mild and chronic infections and conditions resembling them, but not really abnormal; between chronic infections with extensive changes and beginning malignant disease.

The points which I wish to emphasize need hardly be mentioned to the experienced surgeon. He will, I am sure, immediately recognize their importance. A recent occurrence in the practice of one of America's greatest surgeons—if not the greatest—has impressed me more strongly than ever with the supreme advantage of the most intimate familiarity with all pathological possibilities, even when the diagnosis is apparently plain and the operation simple. In consultation I had agreed with the diagnosis of gall-stones and had advised operation in the case of a gentleman of thirty-nine. (Vol. LXII., p. 193.) This patient had suffered for many years, had been observed by the most eminent diagnosticians, had been operated upon under other diagnoses, and had failed to regain his health. At the operation no gall-stones

were found, but the "gall-bladder showed mild chronic thickenings and was distended with bile. There were no stones. The stomach was apparently normal. On the anterior wall of the duodenum, near the pylorus, were two masses,—one the size of a pigeon's egg, the other the size of a small olive. Just what these were, could not be determined. No enlarged glands could be found. The gall-bladder was drained. The wound was closed and there was no satisfactory solution of the question. The operator was quite 'stumped' for a good explanation of the condition. Cancer and supernumerary pancreas were suggested." No case could illustrate better than this the inestimable advantage of wide experience and great knowledge in solving questions which may arise in the course of apparently the simplest operation. No case could emphasize better the limitations of human knowledge and experience; and no surgeon would sustain me in these statements more cordially, I am sure, than would, from his vast experience, the very one whom I am quoting.

In a case of suspected cancer of the pylorus it was impossible by digital examination to make a positive diagnosis; by full exposure and free inspection of the field extensive adhesions of gall-bladder, liver, and pylorus were demonstrated. These adhesions caused a kink in the pylorus, giving rise to the gastric symptoms of hypertrophy and dilatation. The proper procedure—a pyloroplasty rather than a gastro-enterostomy—was therefore selected. By making a clean dissection of the stomach and especially the pylorus; by cutting with a sharp knife every constriction and every band until I could see the actual color and consistency,—I was able—aided by the *feel* of the pylorus—to eliminate entirely the question of cancer and ulcer, and to fix the original lesion where it belonged—in the gall-bladder.

In questionable diseases of the liver, the sense of sight is at times indispensable. In the case of hypertrophic cirrhosis already mentioned, the case in which a fatal nosebleed occurred, the surgeon felt what he thought to be a malignant tumor of the broad, convex surface of the great lobe of the liver. It is quite possible that inspection would have made the diagnosis clear. In many cases the diagnosis of hopeless cancer of the liver can be made by the sense of touch; and yet one must not be content with this sense of touch alone, especially in early cases with perhaps but one or two perceptible nodules. The experienced operator, by distinguishing the stellate contractions of the atrophying nodules of carcinoma from the old scar of an absorbed abscess can recognize the hopelessness of the disease. So it is in the rapidly-growing tumors emerging and projecting from the liver surface—one may make the distinction between the malignant and the non-malignant; between gunma and cancer; hydatids and encysted abscesses.

A frequent occasion for differentiation between malignancy and

chronic benign lesion arises when the gall-bladder is involved, and especially when the etiology indicates the gall-bladder. When the anatomical changes extend beyond the gall-bladder; when the gall-bladder is only a part of an extensive malignancy; when it is one of a number of similar tumors,—the diagnosis will be obvious. When the tumor is confined to the gall-bladder, differentiation between a new growth and a chronic cholecystitis will sometimes be impossible. Under all conditions of doubt the gall-bladder should be extirpated. Indeed, extirpation is the rule in the lesions of the gall-bladder which simulate neoplasms. Hence the surgeon will be taking the safe course, whatever the diagnosis.

In one case after exploration the patient (Vol. 40, p. 24) had been left to die on the ground that the disease was cancer. Three years later I removed from the depths of the gall-bladder at the beginning of the cystic duct an embedded gall-stone which felt like a nodule of malignant disease. I had the advantage of the surgeon who had first operated from the fact that the patient's health for two years had not deteriorated, and the only complaint was pain. This made the diagnosis of cancer improbable.

In a second case (Vol. LIII., p. 29), I removed entirely a gall-bladder which strongly suggested malignancy. The pathological report proved benignancy. In a third case (Vol. XXXIII., p. 156), seen many years ago, the interior of the gall-bladder was a mass of cancer, from which, after cholecystostomy, hæmorrhage became uncontrollable. Extirpation was in this case impossible.

In still another case (Vol. 40, p. 171), jaundice and emaciation, appearing two years and a half after removal of the gall-bladder and a large stone from the cystic duct, strongly suggested cancer. At exploration I found a mass about the foramen of Winslow and in the pancreas. Although the diagnosis seemed clearly cancer and the prognosis practically hopeless, I separated the adhesions which had resulted from the previous operation. Since this operation, some two years ago, the man has continued to improve in health, and he has been awarded life insurance. The diagnosis suggested by the history and apparently confirmed by the exploration, was erroneous. Such inaccuracy should be remediable. It is, indeed, remediable; but only by long and close study of anatomical conditions, both ante- and post-mortem. Opportunity for post-mortem study of these lesions at the time when the benign inflammatory changes have not subsided, and become old and perhaps trivial adhesions, seldom if ever arises; post-mortem observation of malignant disease at that early period when it is remediable is practically impossible, because the disease is not far enough advanced to cause death. The only chance for accuracy lies in the largest possible individual experience.

In some instances, especially when the abdomen has been opened for supposed tubercular peritonitis, ovarian cyst, or other possible operable

lesion, it will be necessary to recognize by sight and touch such diseases of the liver as hypertrophic cirrhosis, atrophic cirrhosis, amyloid disease, and the like. In hepatic or biliary conditions suggesting malignancy a discrimination must be made between multiple tumors of cancer or sarcoma and multiple hydatid cysts. In one case I was able to make the diagnosis of hydatids beforehand and to confirm it on the operating table.

A difficult distinction to make on the living liver is that between malignant disease and chronic abscess. It is essential to make this distinction, first, to decide between continuance or abandonment of the operation; and secondly, to determine where and how far to go in abscess. In what way do anatomical appearances of the living liver, dependent upon an abscess near the surface, characterized by tumor and changes in color,—differ from those dependent upon a malignant growth similarly situated? The rarity of abscess and the frequency of cancer make the occurrence of error extremely improbable. When abscess is present, it is of the utmost importance to make a correct distinction, although I admit that should the necessity for comparison arise, I should be at a loss to tell the difference. In one case I drained an abscess of the liver which presented directly under the skin of the epigastrium. This abscess proved, however, dependent upon malignant disease from which the patient (Vol. XXXIII., p. 17), eventually died. This question of situation, extent and depth of the liver abscess may be a very important one. Unfortunately, we are unable to see a sufficient number of these cases to acquire skill in recognizing them.

Other conditions of the liver with which one must become acquainted are tuberculosis, syphilis, sarcoma, adenoma.

Through the incision for operation upon the biliary tract the surgeon can palpate, in the manner already described, the right kidney. If necessary the contents of the right renal space can be freely exposed to the eye by cutting or tearing through the peritoneum where it is reflected from the duodenum and passes loosely over the anterior lower surface of the right kidney. In one instance I was obliged at operation to make the distinction between an enlarged gall-bladder and an enlarged right kidney. The diagnosis before operation was empyema of the gall-bladder; but the lesion proved to be a pyonephrosis. The kidney was easily removed through the gall-bladder incision. Tumors of the right kidney are, in my experience, almost unmistakable, so that the question of differential diagnosis at exploration rarely arises. And yet I was once surprised to find a tumor of the kidney when I was convinced that the tumor was an enlarged gall-bladder. Janeway had pronounced the tumor renal. Under anæsthesia it was unmistakably renal. It proved to be, as touch and sight indicated, an hypernephroma.

The chief difficulty in the recognition of renal conditions is in the

detection of calculi embedded and often concealed by the parenchyma. The sensation to the fingers is like that of a stone concealed by the tissues of the pancreas. Conditions during life do not differ essentially from those after death, except for the solidification of the paranephric fat and perhaps greater resistance of the renal substance.

The pancreas presents difficulties to diagnosis which exceed the difficulties in all other organs, for reasons already explained. It is impossible to add to the evidence of touch by the evidence of sight without jeopardizing the success of the operation. Say what one may, explorations in the retroperitoneal depths about the pancreas add to operations risks which are sometimes excessive. Incisions into the pancreas made for purposes of diagnosis set free a certain amount of pancreatic juice; and no one knows better than the abdominal surgeon the lethal effects of extravasated pancreatic fluids. Two cases illustrate the difficulties of detecting at operation serious pancreatic disease. In one case—a case (Vol. LXI., p. 174), in which the patient was weakened and emaciated from years of suffering—after a quick and easy operation of last resort in which several large stones were removed from the gall-bladder, death occurred from what might be called inanition. At the autopsy my assistant, Dr. Homans, found a gall-stone in the canal of Wirsung, near its junction with the common duct. This we had not even suspected at the operation. This gall-stone had, however, nothing whatever to do with the fatal termination.

The second has already been referred to,—the fatal case of obstructive jaundice dependent upon a nodule of cancer in the common duct. The number of cases in which the diagnosis depends upon an accurate interpretation of touch is especially large in the pancreas. The trouble is that one cannot predict from digital examination of the pancreas whether the patient is going to die of cancer or recover from a chronic pancreatitis; whether he is going to convalesce rapidly after removal of gall-stones, or later demand an operation for a stone concealed in the depths of the pancreas. The lesson is to drain the biliary passages in all cases of doubt. Of all abdominal questions, that of pancreatic disease seems to me one of the most important as well as the most difficult.

The diagnosis of cysts in the region of the pancreas, with especial reference to their etiology, must be made tentatively, for it is never possible to demonstrate by extensive dissections the actual lesion. A cyst arising from the depths of the epigastrium, especially when covered by the peritoneum of the lesser omental bursa, is presumably pancreatic in origin, but whether dependent upon a stone impacted in the canal of Wirsung or upon some other cause, a safe dissection will not show. The fact of extensive and inseparable attachments of the deeper portion of the cyst wall has led me in four or five cases to regard the cyst as a di-

lated canal. One very large cyst was probably of congenital, non-pancreatic origin from the very fact of its easy total extirpation.

The diagnosis of epigastric cysts is aided, too, by the character of the fluid, which is limpid in pancreatic cysts—almost suggestive of an hydatid. The laboratory demonstration of pancreatic juice will establish the diagnosis. In one of Fitz's cases (reported by him as unique, see *American Journal of the Medical Sciences*, 1900), although the diagnosis was finally made in the laboratory, there was sufficient evidence at the time of operation to justify me in the enucleation of an apparently malignant or semi-malignant tumor.

In the diagnosis of lesions of the deep epigastrium, or deep upper middle abdomen—in the region of the duodenum, pancreas, and jejunum—I have recently met with cases of great perplexity, cases which illustrate my subject in, I think, an interesting way. The first was a pulsating tumor directly over the pancreas (Vol. LX., p. 36). The controversy was between a diagnosis of aneurism and of a malignant tumor through which the pulsations of the abdominal aorta were transmitted. I was so firmly convinced that the tumor was malignant that I opposed exploration. The other opinion was so positive that a surgeon was prepared to operate upon the aneurism. I explored at the urgent request of the family and found a retroperitoneal tumor that to the sense of touch was clearly malignant. Complete exposure of the tumor was requested, and was made. The patient's death was, I think, owing to this prolonged and unnecessary dissection. Little was lost, however, for the disease was cancer of the duodenum.

The second patient was operated upon for gall-stones (Vol. LXII., p. 57). A single stone was removed from the cystic duct and the gall-bladder was drained. Recurrent spasmodic pain continued. I was finally obliged to open the epigastrium because the patient vomited bile continually had gastric spasm, and without distention of the lower abdomen had no passage of either gas or feces. Any one reading this combination of symptoms: gastric spasm, continuous vomiting of bile, distended epigastrium, collapsed lower abdomen, constipation—can hardly help making the diagnosis; and I admit that I do not see how I could have overlooked it. Stricture of the jejunum, whether cancerous or not, is, however, not so common a lesion that many would even think of its possibility! And yet there was a combination of symptoms and signs which ought to have been unmistakable. The anatomical appearances, like those of cancerous intestinal stricture in the usual situation, were so characteristic that the diagnosis was made at a glance. The distended, hypertrophied, reddened and vascular proximal coil; the collapsed and anæmic distal coil; the annular sulcus with a pearly, smooth mass in the centre of a stellate depression,—all were pathognomonic of cancer. Immediate resection was followed by recovery.

Here the importance of experience in anatomical appearances was clear, for in the one case a fatal dissection might have been avoided, and in the other a necessary operation might have been overlooked.

In most operations upon the spleen the lesion must be recognized by the surgeon upon the spot, especially in emergencies, when examination of the blood is impracticable or impossible. In one case, already reported, I removed an enormously enlarged spleen which proved to be that of a myelogenous leukæmia. As I had not at hand any means of examining the blood and had never seen the patient before, and as the symptoms seemed to demand an immediate operation, I removed the spleen. The patient recovered and was well for several years; but eventually she died, in the most distressing way, as patients with this disease usually do. Had I been sufficiently acquainted with the appearance of the spleen in this disease, I should have avoided an operation which however valuable in the study of the disease, was, from the patient's point of view, of no permanent service.

The condition of the spleen becomes of great importance when, after direct violence over the splenic area, the signs of hæmorrhage appear. As in violent blows over the liver, a fracture of the friable parenchyma with bleeding should be at once suspected, and the abdomen opened. The emergency of fractured spleen or liver is, however, rare. The diagnosis can be made immediately by the sense of touch which detects in the sharp edges of the fissure an abnormal anatomical contour. In the older days I recall severe injuries to the liver from which recovery was spontaneous; in the later, but one operated upon, and that fatal. In this case I removed a piece of the right lobe which was lying free in the abdominal cavity. There had been much hæmorrhage, but it had ceased. What would have become of the loose fragment without operation? In a case of fractured spleen at the Massachusetts General Hospital Dr. Brewster operated for me and removed successfully the fragments. In another case death followed an exploration that was performed too late. In renal injuries local extravasations of blood are very common; peritoneal, very unusual. In right-sided blows the fingers should search the right kidney as well as the liver. In gunshot wounds the importance of a clear and immediate recognition of injuries to the solid abdominal viscera is of course great. As a rule, however, hæmorrhage from this cause seldom indicates operation, because bleeding from the large vessels is usually immediately fatal; while that from small ceases spontaneously. The question in injuries of the spleen, and more frequently in those of the kidney, is that of total extirpation, because of extensive lacerations and destruction of the blood supply. I have known of a fatal hæmorrhage from puncture of a large splenic vessel by a small aspirating needle used by a physician in tapping the pleural cavity. The source of the blood was determined only after prolonged

post-mortem search. In the living patient diagnosis, as well as control of the bleeding, would have been impossible.

A dangerous complication of a common disease is splenic abscess in typhoid fever. This occurrence must be very unusual, for I have never seen a case or known of one at the Massachusetts General Hospital. The nature of things makes familiarity with the touch of splenic infections almost impossible. The time, nevertheless, has come when in typhoid, either by mistake or by design, operations are not so very unusual, and the diagnosis by touch and sight is becoming of greater and greater importance.

The determination of the functional activity of the kidney is one of the most important and valuable pieces of evidence that we can gain in explorations upon the living. In spite of extreme preliminary care in examinations of urine, whether obtained by segregation or by catheterization, I rely more upon the actual "feel" of the kidney than upon anything else. In all questions of nephrectomy it is essential to determine as accurately as possible the condition of the kidney that is to be called upon to bear the whole burden of elimination. As a matter of theory, segregation and catheterization are perfect; as a matter of practice, both are imperfect. The actual digital examination of a kidney has greater advantages and less dangers than either. Between catheterization and segregation the Harris method of the latter seems to me much the safer. Ureteral catheterization should be practiced only by those who have made a specialty of this work. Even the expert may inflict serious mechanical injuries and spread grave infections,—dangers which in the hands of the inexperienced are prohibitive. If there were no other way of determining the condition of the kidney, it would be necessary to resort to these methods; but we have as a preliminary step in nephrectomies and nephrotomies without danger to the patient, the possibility of exploring with the hand. Error is of course possible even to the most refined and educated touch.

The following case illustrates the danger of relying too much upon the results of examination by the inexperienced hand. The incident occurred many years ago, before the routine practice of manual examinations during operations. The case was one of tumor of the left kidney which I had decided to explore, and, if it seemed best, to remove. The right kidney in size, shape, and consistency seemed normal, though afterward I remembered that I felt a slight doubt about it. I removed the left kidney and found myself mistaken as to the malignancy, for the lesion proved to be hydronephrosis. At autopsy the right kidney also was found hydronephrotic; and, whereas the two had been able to carry on adequate elimination of urine, one was not. The patient died of anuria. From that time to this I have been able to demonstrate accurately the functional sufficiency of the kidney.

Neglect of this examination will sooner or later lead a man to remove either the only kidney that the patient has or the only one that is of any value.

The diagnosis of renal diseases by touch and by sight is comparatively easy; and yet the surgeon will meet with many difficulties, the commonest of which is in the detection of a renal stone. He will find the same uncertainty in detecting a stone concealed in the kidney that he will in detecting a gall-stone concealed in the pancreas; and it will be dependent upon the same cause—the obscuration of visceral parenchyma. Once a stone is actually felt, however, the sensation is as unmistakable almost as that which a stone in the bladder gives to the searching sound. While the surgeon is perfectly satisfied to decide for or against nephrotomy when he actually feels a stone, he is much disquieted, after a history of stone in the kidney, confirmed perhaps by the x-ray, to abandon the operation on the strength of his inability to detect the stone by actual palpation. He knows that it is sometimes impossible, in the case of a small or flattened calculus, to detect the stone through the renal parenchyma. He feels strongly the dangers of a useless nephrotomy, and yet, having gone far enough to expose and feel the kidney, he has the same disquieting reluctance in abandoning the operation without making absolutely sure of there being no stone that he has in abandoning the search for a gall-stone concealed possibly in the depths of the hepatic duct or in the thickened tissues of the pancreas.

The differentiation of new growths in the kidney is of the utmost importance, for upon the correct interpretation of the anatomical appearances depends the subsequent procedure. In the case already cited—double hydronephrosis—the patient's death was owing entirely to my inexperience in digital examination of normal and abnormal kidneys. Today I should have not only additional experience in such cases, but the resource of catheterization of the ureters and segregation of urine—resources which, as I say, in the hands of the expert, in spite of its dangers, may be of the greatest value. The differentiation between benign and malignant tumors of the kidney by the sense of touch is sometimes easy, sometimes difficult, sometimes impossible. It seems easy enough to make this distinction when one looks back on his cases after his diagnosis at the operating-table has been confirmed by the microscope. I have at this writing, however, a kidney removed three or four days ago under the clinical diagnosis of hypernephroma. There has as yet been no report from the laboratory, and I still feel considerable doubt as to the wisdom of operation. I have a feeling that the patient might have been able to get along without this dangerous operation, from which I thought at one time that she might die.*

*This patient (Vol. 60, p. 63) had haematuria, but the diagnosis remained in doubt until, under anæsthesia, I felt a tumor of the left kidney. The right

In the case of the kidney, if the operation is performed on anatomical lines, as I think it always should be, the surgeon has the advantage not only of the sense of touch, but of sight. When possible I expose the kidney so fully that I can see the whole of it, feel the whole of it, and can have immediate access to its great blood vessels. In this way the gross evidence is at hand upon which to make a diagnosis, except section of the tumor. One can decide whether it is best to enucleate inside or outside the capsule, and in case of hæmorrhage he can instantly secure the bleeding vessels. There is even greater objection to cutting into a tumor of the kidney for diagnostic purposes than there is to cutting into a tumor of the breast; for the loose tissues about the renal spaces are, as I have demonstrated beyond question, extremely susceptible to autoinfection. For example, I have seen, after the removal of a sarcomatous kidney from a child, the whole renal area planted with malignant disease which, in the course of three or four weeks, even sprouted out through the stitch-holes.

In connection with the kidney the question of normal mobility is of interest and importance. I have already said that the right kidney in life is usually movable enough to allow the lower border to be brought to the brim of the pelvis. Abnormally movable kidneys—almost invariably right—have more or less of a pedicle. Such kidneys can not only be brought to the brim of the pelvis, but can be pushed far to the left. The left kidney, although it can be brought down a certain distance, will almost never be found to have limits of motion exceeding the normal.

The surgeon in fixing a kidney should take advantage of the opportunity of making a careful examination. He will at times be perplexed to find some gross anatomical change hard to explain accurately enough to guide his subsequent operation. A young lady (vol. LIV., 26 —), after complaining of fatigue and right-sided uneasiness amounting at times to actual pain, showed a rather large and unusually movable right kidney which I decided to fix. Free exposure disclosed an enlarged, irregular kidney, filled with what were apparently cysts of different sizes. No stones were perceptible, and there had been no pus in the urine. Was this simply a cystic kidney or not? Should I be doing my full duty by fixation? Ought I to incise the kidney for confirmation of a diagnosis which seemed plain enough—at the expense of increased danger and perhaps a urinary fistula?

Space and time do not permit consideration of other abdominal areas and conditions. The pelvis alone, hitherto the most frequently invaded and best understood, presents questions which tax the skill of the most experienced operators. To make an immediate and correct diagnosis

kidney was normal in shape, size, and consistency. Nephrectomy was difficult and bloody. The patient nearly died of hæmorrhage, but, though convalescence was slow, she eventually recovered completely.

of even so simple a thing as a normal pregnancy may call for skill of the highest order. To discriminate between the ovarian lesion demanding extirpation and that demanding repair; to tell the benign uterine tumor from the malign; to differentiate the tube that can be restored and permit pregnancy from that which cannot remain and permit good health; to recognize, in a word, the operable and the inoperable—the lesion which demands, which indicates, which permits operation, and the lesion which contra-indicates, which strongly forbids it,—to be able to do these things, requires long experience and patient study upon the dead and especially upon the living.

The swift and fatal lesions of the abdominal cavity, to some of which I have already referred, demand a brief consideration, for they, from their very nature, cause the greatest mortality of abdominal surgery. The fact that most of these lesions are curable by prompt operation, places the burden of successful treatment upon early diagnosis and timely operation.

In many abdominal emergencies there is before operation but little to guide the surgeon. In a large proportion—appendicitis—the diagnosis is easy. Taking them all together, however, including those fulminating lesions which are immediately obscured by a general peritonitis—the surgeon is obliged to make his attack through the median line. In many cases I have been so uncertain of the real lesion that I have been led to it only by systematic approach through that incision which, in the long run, has proved the most advantageous—the median line below the umbilicus, or the median line above the umbilicus, according to the preponderance of the symptoms and physical signs.

One is guided by the appearances disclosed. If, the moment the peritoneum is opened, the surgeon finds that the fluid is purulent and faecal in odor, he is guided to the commonest cause of acute general peritonitis accompanied by odor—the perforated vermiform appendix. In young adults, finding the appendix normal, he examines first the stomach and duodenum; in older people he examines first those portions of the alimentary canal which become perforated by malignant disease: the sigmoid flexure, the hepatic and splenic flexures, the ileo-cæcal coil, the rectum. When there are free purulent fluids of urinary odor, he examines particularly the urinary tract. In traumatic cases a faecal odor suggests a perforation of the alimentary tract; free urine proves a rupture of the bladder, ureter, or kidney. Fluids containing food or having that extraordinary characteristic odor of gastric contents, lead at once to the stomach. If in non-traumatic cases the abdomen contains free blood, and especially if the presenting areas of the mesentery show spots of fat necrosis, he seeks the pancreas. I have been led to this organ by free blood and areas of necrosis in a girl of eighteen. When the free fluid is clear and the presenting peritoneum is covered

with small mealy nodules, the Fallopian tubes, the seminal vesicles, or the spermatic cord should be examined. In traumatic cases the presence of free blood leads the surgeon at once to the spleen, the liver, the mesentery, or the omentum.

In pelvic cases the escape of blood in women of child-bearing age leads one to inspect the Fallopian tubes for extra-uterine pregnancy, or the stomach for a perforated and bleeding gastric ulcer.

Finally, the presence of blood in the abdominal cavity, in connection with the ovarian tumor or the fibroid tumor, leads one to inspection of the large veins and arteries of these abnormal growths. I have found free bleeding from the arteries of a fibroid, evidently caused by bimanual examination. In a fatal abdominal hæmorrhage following labor the source of blood was found to be a vein in the uterine wall. In rare instances I have found blood in the abdominal cavity that was evidently due to the rupture of a Graafian follicle. Many interesting and valuable observations will be made when attention is called to the importance of making them. The result will be a skill in the interpretation of disease and in its cure which will well repay the observer.

In apparently the plainest case of malignant disease, for example, skill in recognizing the significance of anatomical appearances may lead to the discovery of actinomycosis or of foreign body. In a case of supposed uterine fibroid it may demonstrate a normal pregnancy, a phantom tumor, or even a fæcal impaction.

The operating abdominal surgeon, trained in the pathology of the living, and the clinical physician, trained in the pathology of the dead, expert as they may be in the interpretation of symptoms and in the significance of anatomical changes, cannot but be impressed by the limitation of their skill. In pathology, symptomatology, diagnosis and especially in prognosis, indications for operation and operative technique, they will be daily confronted by problems which will not only perplex and baffle their skill.

The responsibilities thrust upon the surgeon in the interpretation of symptoms by anatomical appearances are responsibilities upon which depend health or invalidism; life or death. In active surgical practice the responsibilities assumed by the surgeon are, first, an interpretation of symptoms accurate enough at least to indicate exploration; secondly, a recognition of anatomical changes sufficiently clear to lead him to the exact seat of the lesion; and, finally, the skill to carry out quickly and safely the appropriate operation.

In training the prospective surgeon to bear successfully these responsibilities, we should recognize the necessity for prolonged and intense study of histories, symptoms, and signs; of the pathology of the dead:

of the anatomical changes in the living; and, finally, of the relations and interdependence of histories, symptoms, and anatomical changes.

As surgery invades one region after another, seeking mechanical causes for hitherto obstinate and perplexing symptoms, and proposing by operative measures mechanical relief, the surgeon's responsibilities are necessarily greatly increased. The necessity for knowledge in comparatively unknown fields demands a familiarity with symptoms and conditions before regarded as purely medical. One hardly could imagine twenty-five years ago that it would ever be necessary for the surgeon to become familiar with the anatomical appearances of typhoid in the living. And yet previous to the recent developments of abdominal surgery what was really known about the anatomical appearances in the early stages of typhoid fever? Practically the only opportunity that the pathologist ever had of studying this disease in the early stages was when death took place from some intercurrent affection. The surgeon today sees not only the gross changes of the early stages of typhoid after death, but those delicate anatomical appearances of perhaps the first hours of the attack, when in atypical cases the symptoms and signs point strongly toward an acute appendicitis. And it is essential to the proper education of the abdominal surgeon that he should be familiar with just such conditions. The number of explorations for acute abdominal symptoms caused by typhoid fever is, in any man's experience, small; but in the aggregate it is undoubtedly large. In a case already reported I have myself demonstrated the appearances in the first days of typhoid fever. In spite of a strong suspicion of typhoid the symptoms seemed to demand an exploration. The correct diagnosis was made by Dr. Whitney from the examination of certain lymph glands which I removed from the ileo-cæcal coil.

As in typhoid fever, so in other acute non-surgical abdominal diseases,—of the stomach, intestine, pelvic viscera, kidneys, liver, pancreas, and spleen,—whether they are coincident with the lesion demanding exploration or dependent upon it, our knowledge is daily being extended. In chronic affections, too, much valuable information is gained by explorations made under a mistaken diagnosis. In cirrhosis of the liver, for example, explorations under the diagnosis of tubercular peritonitis—or even of ovarian tumor—have shown the appearances of the liver in the early stages of that disease.

What is the best method of education in the interpretation of abdominal disease during life? In the medical school the best opportunity for the education of the touch is found at the autopsy table; for in a large number of lesions, such as new growths, gall-stones, renal stones, changes in the shape, size, and consistency of organs,—the autopsy room (except for the restraining influence of the fear of doing harm) furnishes practically as good means of education as the operating table.

At every autopsy exercises should be held for this purpose. The history of the case and the clinical examination as described in the records, should first be given. Upon this evidence each student should be required to write down what he expects to find. Next the body should be examined for physical evidence of disease. Upon the diagnosis thus made probable should be based the first incision, which should be large enough to admit the finger. After the examination by a single digit the incision should be enlarged enough to admit two fingers or the whole hand. When, for example, the history points toward cancer of the stomach, I make the usual incision—small at first, later large. The student, with gloved hand, makes as thorough an examination as he wishes, and writes down his final diagnosis. Each man is then called upon to give his opinion as to whether he would operate or not. When possible, the preliminary exploratory steps are then taken as they would be in an exploration for similar conditions in the living. These steps often demonstrate better than any other the actual relations of the normal and the abnormal.

In deaths from such diseases as pneumonia and apoplexy, in which there are no abdominal complications, I have required the students to tell me, by the sense of touch alone, the conditions of the abdominal viscera. This course more than any other has seemed to stimulate interest in the education of the tactile sensibilities. After the conclusion of the consultation—so to speak—the autopsy is continued and the examiners are able to see wherein they were right and wherein they were wrong.

The education of the touch in the prospective surgeon is next carried out in the course of abdominal operations. After my own examination one or two assistants are asked to examine and to state their opinion and advice. This takes a very short time. With intelligent and experienced assistants, it not only adds to the strength of the diagnosis, but often raises doubts of grave import, or affords suggestions of great value. Young men who intend to practice medicine, and especially those who intend to practice surgery are therefore recommended to utilize every possible opportunity to make examinations in the autopsy room as they would make them at operation. I would next insist strongly upon our duty to instruct the prospective surgeon by giving him—in the course of operations which do not demand haste—every chance to educate the senses of touch and sight.

Much remains to be said upon this subject, but the patience of the audience must be already exhausted. Perhaps too much importance has been attached to it; but how can too much attention be given to a subject upon an intimate knowledge of which depends the successful solution of questions of life and death? One cannot but feel, upon calm reflection and candid review before his own conscience, that many if not most of his errors of omission and commission, especially in abdom-

inal surgery, have been the result, not so much of ignorance and inexperience in general and special pathology as illustrated in the autopsy room, as of his lack of knowledge and familiarity with those delicate changes from the normal which are met with only when the physiological and pathological processes are in actual operation.

PYURIA.

BY ERNEST G. MARK, M. D., KANSAS CITY, MO.

In presenting this subject it is, perhaps, best at the outset to remark that by the term "pyuria," the writer has reference only to the chronic form arising from suppurative processes in the urogenital tract in which pus in the urine is the most persistent and tangible symptom. The accurate localization of the origin of this pyuria is absolutely essential for its elimination and it is in the hope of presenting the methods for differential diagnosis concisely and clearly that this subject has been chosen.

Pus in the urine may originate in (1) the anterior urethra, (2) the posterior urethra, (3) the prostatic follicles, (4) the seminal vesicles, (5) the bladder, (6) the right ureter, (7) the left ureter, (8) the right kidney or its pelvis, (9) the left kidney or its pelvis and (10) from suppurating areas in the neighborhood of and communicating with any part of the urogenital tract.

Various procedures have been made use of for the purpose of determining definitely the origin of a pyuria. It is unfortunate that the majority of the methods in general use are fallacious and it will be the endeavor of the writer to point out these fallacies and the means by which they may be corrected.

Preliminary to absolute localization, it is necessary to determine whether the suppurating focus is located in the urethra, the bladder or the upper urinary tract. The two-glass test of Thompson, and the three-glass test of Jadassohn, in conjunction with microscopical urinalysis, have been largely depended upon for this differentiation and while they possess undoubted value, are subject to error.

Briefly stated, in the Thompson test, the first glass is supposed to contain the products of suppuration from the entire urethra and the second such products as are mixed with the bladder urine or squeezed from the prostatic follicles. In the Jadassohn test, the first glass is presumed to contain the products of suppuration from the entire urethra, the second, the products from the posterior urethra and the third, the material squeezed from the prostatic follicles. Should the first glass be cloudy, the second fairly clear except for a few shreds, and the third more turbid, it is presumptive evidence of a posterior follicular involvement. Should the first glass contain shreds in a clear urine and the

latter glass or glasses, no shreds, the indication is that the anterior urethra alone is involved. Should all three glasses be turbid in about the same degree, the presumption is that we have to deal with a suppuration which is back of the urethra.

These tests are not accurate for the following reasons:

(1) Should there be profuse suppuration in the anterior urethra, the products of suppuration will not be all contained in the first glass.

(2) The suppurative process may be confined to the posterior urethra and yet be so slight as to exhibit shreds only in the first glass.

These sources of error may be readily obviated by thorough irrigation of the anterior urethra previous to urination, the washing being kept for examination. These washings will contain what suppurative products are in the anterior urethra. What shreds or pathological material are passed at the subsequent urination must come from back of the compressor.

The questions which then arise are whether we have to deal with a posterior urethritis, a follicular prostatitis, a seminal vesiculitis, a cystitis or a suppurating focus located further up in the urinary tract.

If the urine passed in two glasses subsequent to irrigation of the anterior urethra exhibits shreds in the first glass and none or relatively few in the second, it is practically certain that we are dealing with a posterior urethritis. If both urines are cloudy in about the same degree or the second slightly more turbid than the first, the probabilities are that there is a follicular prostatitis present, possibly a cystitis, ureteritis or a pyelitis. Microscopical urinalysis is absolutely imperative, and in the hands of a skilled pathologist will prove extremely valuable in identifying the different epithelia, etc.

If we have reached the definite conclusion that the suppurating focus is in the posterior urethra, we must determine the integrity or involvement of the prostatic follicles and the seminal vesicles. This investigation is best carried on as follows:

After urination the bladder is comfortably filled with a warm normal salt solution by the Janet method and the prostate carefully massaged, care being taken that the massaging finger does not extend beyond the limits of the prostate. The bladder is then emptied into a clean glass and the fluid saved for examination.

The bladder is again refilled with warm normal salt solution and the contents of one vesicle expressed, after which the patient empties the bladder, the fluid being kept for examination. The same course of procedure is pursued in regard to the other vesicle.

The fluids are then centrifuged and the microscope completes the differentiation.

Where we are called upon to differentiate between a cystitis and a suppuration higher up in the urinary tract, the following procedure commends itself as being easily applicable and fairly accurate.

The bladder is thoroughly irrigated through a soft rubber catheter until the washings are returned clear. The catheter is left in situ and the accumulating urine allowed to drain through it and collected. If it is cloudy and contains pus and epithelia in about the same proportion as the bladder urine passed before irrigation, the evidence is presumptive that we are dealing with a descending infection. The possible sources of error are obvious and may be avoided by cystoscopy and careful microscopical urinalysis.

If, as a result of these investigations, it is evident that the pus originates in that part of the urinary tract above the bladder, the questions as to whether the infection is unilateral or bilateral or is renal or ureteral, remain to be settled. For this purpose, accurate segregation of the two urines is essential. The various segregators are, at the best, but makeshifts. They are inexact and are productive of much discomfort when in place, especially in the male bladder.

The catheterizing cystoscope affords us our only exact method of segregation and should be utilized where an accurate division of the two urines is essential. It requires no remarkable degree of skill for its employment and under proper precautions in technique is absolutely accurate and devoid of danger.

After the catheters are inserted into the ureters they are pushed up to the kidney pelves and the cystoscope withdrawn, leaving the catheters in situ. After the first drachm or two of urine has escaped, the drainage is caught in two sterile bottles labeled "Right" and "Left," extreme care being taken that the catheter from the right ureter drains into the corresponding bottle and that from the left into its bottle. If no pus is found in these urines, the catheters are gently pulled down until they are just within the ureters and the drainage again caught in marked, sterile bottles, thus differentiating a pyuria originating in the kidneys or their pelves from one which is ureteral. The latter differentiation is seldom called for but completes the last link of the chain.

By the procedure outlined in this short paper, an accurate localization of the origin of a pyuria can be assured. That such localization is essential for successful curative measures, there can be no question. A pyuria accompanied by a dysuria must not be carelessly assigned to a posterior urethritis or a cystitis. Neither may be present and the kidney condition responsible for the symptoms, overlooked in a none too painstaking diagnosis, may pursue its course unchecked. An undiscovered vesiculitis, draining its infection into the posterior urethra and by this drainage, making intractable the accompanying posterior urethritis, may prove the despair of the careless diagnostician.

Such conditions arising frequently in the every day practice of medicine seem to justify the purpose of this paper, to urge the application of methods of precision to the localization of a pyuria.

EDITORIAL.

IBSEN IN PSYCHIATRY.

When a literary man of acknowledged position dies, critics rush into print with all sorts of theories anent the esoteric meaning of his writings. Ibsen has not been spared this honor, especially by the medical press. The many articles that have appeared attribute a most remarkable knowledge of medicine to the distinguished literateur when the facts are that aside from heredity, his pet theory, and neurasthenia, his works are purely literary and are not tracts written to exploit the dramatic possibilities of puerperal psychosis, paranoia and other mental derangements. Ibsen made a study of the "Femme incompris," not as Alexandre Dumas, Jr., saw her, the woman whose extraordinary behavior was prompted by physical predilections rather than by spiritual motives, but as an entity who has inherited certain physical and mental defects. That Ibsen saw in heredity a *bete-noir* is not surprising when we remember his early life among the simple Norwegian folk in his native village of Skien, and later on at Grimstad where he was apothecary's drudge for five years. His introspection led him to ponder the reasons for the crass ignorance, the petty meanness, the blind prejudice that surrounded him on all sides, and the outcome of his reasoning declared itself in a firm belief that this unadvanced state of society was due to heredity. Even in Christiania, where a larger field for observation presented itself, the obsession of his theory remained. We do not wish to quarrel with Ibsen for having a theory in which we concur, but we do emphatically protest against the interpretations of his works as set forth in the medical journals. Nora Helmer in "A Doll's House" is not the victim of any clearly outlined mental derangement. She is the spoiled daughter of an indulgent father. She is exacting, unforgiving, high-strung, emotional. Added to this, she is imbued with the dramatist's idea (an idea that obtains in the majority of his plays) that a woman owes certain duties to herself. Those who have read the drama know the results. Hedda Gabler is the daughter of General Gabler, from whom she has inherited mental traits that make her an untrammelled unit in society. She also owes duties to herself and to none other. Her unhappiness, founded on a good cause, finally drives her to suicide. Is this a puerperal psychosis even granting the possibility of one month's pregnancy? Nevertheless Dr. Jas. J. Walsh, in the *Independent* (New York, Aug. 23) calls it "A typical example of puerperal psychosis," and the *Journal of the American Medical Association* (Chicago, July 14th) characterizes it in like terms. Ellida Wangel, in

"A Lady from the Sea," is another Ibsen character who cannot adjust herself to conventional life. The sea is continually calling her, so she is made to remark, and she leaves under compromising circumstances. At first one is tempted to say, here at last is a distinct disease—delusional insanity, but this would be a wrong diagnosis, for the dramatist gives us to understand with unmistakable clarity that her love for the sea was a case of heredity and that by being true to herself—following the dictates of an emancipated mind—she returned to her husband a better and purer woman. We could continue this *ad infinitum*, but the above illustrations show to our mind the unbending attitude of Ibsen toward what he conceived would cure the ills of society. Only in one instance—that of Oswald Alving in "Ghosts"—does he describe a distinct disease, hereditary syphilis with resulting dementia. All the other plays are studies in heredity with characters not afflicted with paranoia but influenced by the dramatist's theory which he believed would result in the complete emancipation of the sexes. Aside from being a literateur he was a sociologist and psychologist but not a psychiatrist. A physician of repute who reads into any of Ibsen's characters, excepting the aforementioned Oswald Alving, nosological symptoms of psychiatry, is guilty of a laxity of his scientific calling. Medicine should have a dignity to inspire the laic with respect. This can only be done when both medical and secular press cease to publish superficialities which are eagerly caught up by an expectant public prone to tincture the conversation of the day with veiled allusions to loathsome and repulsive diseases.

COMMENT.

THE NINTH COMMANDMENT IN MEDICAL JOURNALISM.

Not since Dean Swift wrote the immortal "Battle of the Books" has there been such a delightful interchange of compliments as those now appearing simultaneously in the *New York Medical Record* and the *Journal of the American Medical Association*. The fulminations are so lurid that a looker-on is tempted to credit each with that highest form of humor—the unconscious. The *Record* should not forget that Cæsarism is the outcome of that much-misunderstood aphorism—Liberty, Equality, Fraternity. If we have losses in other walks of life—and what observer can gainsay this?—why should an association that wields the power of the American Medical be exempt? A boss is a peculiarly American institution with no counterpart elsewhere. He rides the highest crest of universal suffrage, his actions are unquestioned by his supporters and admirers; in fact, his exaltation, sometimes imagined, at other times exaggerated, is prone to convert amiability and suavity into arrogance and aloofness.

The *New York Medical Record* seems to be oblivious of this when, editorially, it demands with a childishness remarkable in this age of muck-raking, "that the policy of secrecy in the management of the Association be done away with" (Sept. 15). The editorial in question is an expression of great kindness on the part of the writer, who is moved to see extenuating circumstances for past misdemeanors. Could charity be better expressed, and belief in the triumph of greatly wronged innocence be better voiced, than in the following propitiatory lines: "The MEDICAL RECORD has believed and has repeatedly declared its belief in the personal honesty of the officials of the association * * *. We are rejoiced to learn that those in control of the Association have at last been brought to our way of thinking, and, if they carry out loyally the promise of reform which they have now made, they will have the cordial support of all the members whose servants they are." (Sept. 15). A week later (Sept. 22), we note a sad decline in Dr. Stedman's buoyant tone, for the *Journal* published a most exhaustive attack on the *Record* the day Dr. Stedman evinced his extraordinary enthusiasm. Instead of the *Record* seeing a cloudless sky auguring for reform and general satisfaction, it sees portentous clouds, fearlessly calls the *Journal* the instigator of falsehoods, and advises the Editor-Secretary to a closer application of the "Ten Commandments with the ninth underscored, and see that he, or whoever writes the editorials, observes its admonition in his public utterances." Simultaneously the

Journal makes recriminations, and, prompted by malice, attacks the probity of William Wood & Company. "In the commercial reports, William Wood & Company, Medical Publishers, are rated at a pecuniary strength of from three hundred to five hundred thousand dollars," splutters the *Journal*. This piece of emotionalism is so convincing of William Wood & Company's rascality and the sublimated uncommercialism of the *Journal* that comment is unnecessary. Any adverse criticism of a publisher is a superfluity we condemn. The history of the trials and tribulations of authors has taught us to respect those superior judgments who decide the fate of a literary aspirant. A publisher who has attended strictly to his onerous duties and has accumulated \$500,000.00 by refusing that which is poor stuff and publishing only gems of science, must needs be a clever, not to say a very good, man. It is the manner of the day to deride the publisher for grave mistakes in judgment, but though we can lay at his door the indisputable fact that Edward Fitzgerald, the translator of Omar Khayyam, was turned down seventeen times, we must admit that this apparent heartlessness has worked weal for humanity by stemming the tide of useless and inane books. And who will be temerarious enough to deny the rare discrimination shown in William Wood & Company's list of publications! As for the controversy, the smug self-satisfaction of the *Journal* until the criticism of the *Record* aroused it from its pleasant couch of security was a picture of the rare qualities of optimism. In the words of Dr. Pangloss, in Voltaire's *Candide*, the *Journal* thought "all is for the best in this best of possible worlds." Optimism unalloyed is a charming quality to possess; it takes a joyful survey of the ills and trials of mankind, its indifference is quite callous, and finally it allows the individual to lumber on from year to year with kind thoughts, kind words and unruffled spirits. On the other hand, optimism, when bolstered up by bossism, seems to be completely sensitized, for a mere pin-prick would appear to cause much agitation. Is the belligerent attitude of the *Journal* indicative of a combination of the above qualities, causing the belligerency to be the mere sputter of an over-excited old lady? Is the *Record* in the right to demand the veil to be torn away from the door which leads to that inner room beloved of all financiers on account of its simplicity of furniture and multiplicity of methods? Who will answer these pertinent questions? In the meantime, the controversy, having begun mildly some months back, is deteriorating into personalities and has the dignity and versimilitude of what Philip Massinger wrote some three hundred years ago, in his play, "*The Virgin-Martyr*": "I stole but a dirty pudding, last day, out of an alms-basket * * * and the pecking, chitty-face page hit me in the teeth with it."

PHILOSOPHY AND SLEEPLESSNESS.

We are struck with the verity of the statements made by Norman Bridge in an article entitled "Some Truths About Sleep." The constantly increasing number of people who in our modern life suffer from sleeplessness is a matter worthy of thought. These persons driven to desperation by night after night of mental torment, are all too apt to seek the aid of drugs to produce sleep. This is evidenced by the ever-increasing output of "patent" soporifics. Any individual so affected will label his malady insomnia. Correctly speaking, the name of his disease is insomniphobia. The vicious circle which he travels mentally is of the greatest importance in considering the remedy. The insomniac over-desires to sleep. He gets exceedingly anxious as to whether he will or will not sleep. He retires at an habitual hour, darkens his room, closes his ears to the noise nuisance and then mentally demands sleep, meanwhile being convinced that he is to be disappointed. Consequently he is restless, exasperated and in the morning feels a sense of chagrin, and this is just the mental state impossible to sleep.

Our ideas regarding sleep go back for many generations. We are all convinced that we *must* sleep. Furthermore, we have rules for sleep, rules for going to bed and getting out at stipulated hours and the infraction of these rules seems to imply a moral culpability. Our first error is in not knowing the required amount of sleep for each individual case. Some of us are laborers of the body, others laborers only of the mind, and some do not labor at all. Should we then all enjoy the same amount of peaceful slumber?

Sleep is not to be coerced. The insomniphobiatic should cultivate a mental attitude of supplication and tolerance rather than one of overbearing dictation in wooing sleep. Furthermore, he should never count the hours of slumber for this breaks the charm and spoils the game. The mind should be brought to a state of mental tranquility by a happy spirit and cessation of active thinking. These are the primary factors. The secondary sleep will then come in an amount sufficient to our bodily and mental needs.

MEDICAL AND SURGICAL PROGRESS.

INTERNAL MEDICINE

IN CHARGE OF

JESSE S. MYER, M. D.

ACUTE DILATION OF THE STOMACH AND SO-CALLED ARTERIO-MESEN-
TERIC OBSTRUCTION OF INTESTINES. — (*Munch. Med. Wochensch.*,
Aug. 7, 1906).—Neck reviews the literature on this subject and reports
four cases. Regarding the etiology he gives the following: (1) Over-
eating or over-drinking. Kirch reported a case caused by drinking two
bottles of lemonade. Heine's case was caused by a large meal and three
or four bottles of champagne. Cortez, Brommler, Hofmann, Boas,
Frankel and Abbe also report cases from error of diet. (2) Cases have
been reported accompanying kypho-scoliosis (Perry, Shaw, Kirch, Kelly).
Kirch's case occurred in a girl who had a plaster-of-Paris corset to
correct a deformity of the spine. (3) Chloroform narcosis following
operation. Reidel describes 29 of these cases. He says the presence of
chloroform in the stomach produces changes upon the muscles and nerve
elements of the stomach which cause this severe condition. He also
reports a case due to a small dose (.5 gm.) of veronal; later the patient
was given other narcotics (sulphonal, morphine, bromides). (4) Trauma,
as crushing injuries, have caused it in a few cases (Appel, Wallace,
Box). (5) Arterio-mesentery intestinal obstruction. Kundrat reported
three cases including the post-mortem findings of acute dilatation caused
by compression of the duodenum from tense mesentery. That this could
be caused by displacement of the small intestines was the conclusion of
Albrecht from two post-mortems. This has also been proven experi-
mentally by the author. But that a general enteroptosis is a predis-
posing condition for this obstruction of the duodenum in which the
superior mesenteric artery and the mesentery are responsible, is probably
without question. (6) Constitutional diseases and previous diseases of
the stomach predispose. The symptoms are violent vomiting, more or
less pain in different parts of the abdomen, distension of special locations
of the abdomen depending upon shape and size of the stomach, frequent
thready pulse and an absence of rise of temperature. As to the diagnosis,
peritonitis is excluded by the absence of temperature and capsulated fluid
in the left half of the abdomen by the use of the stomach tube. He
says that of 60 cases, only 13 were diagnosed correctly. The prognosis
depends entirely upon the active immediate institution of the correct
treatment. Of 64 cases, 47 have died. The treatment consists (1) in
emptying the stomach entirely. This is done most advantageously in a
dorsal position. The importance of the deep introduction of the tube
is emphasized. He says that in the cases which died after stomach
lavage and emptying it is probable that the stomach was not completely
emptied. (2) During the first day, lavage and emptying the stomach

should be done frequently. (3) Diet should be absolutely interdicted by mouth and nutriment, enema substituted if necessary. (4) Salt transfusion should be given. (5) Neck believes that the operative treatment is not indicated, at least, until after medical treatment has failed. Operations (laparotomy, gastrotomy, puncture of stomach, gastro-enterostomy; Appel, Hofmann, Joseph, Wallace, Box, Kirch, Korte) have all been fatal.

FAT DIGESTION IN THE STOMACH.—Ludwig von Aldor (*Wien. Klin. Wochens.*, July 26, 1906).—Reviewing previous investigations made upon this subject the author attributes to Marcet the first positive statements, in 1858, affirming fat digestion in the stomach. Cash corroborated Marcet's finding by experiments with the extract of the stomach mucous membranes of dogs and said that it was of ferment nature. Klemper and Scheurlen demonstrated this process in dilated stomach of humans and attributed it to a process of fermentation. Kluf, Contegean and Bunge all have substantiated the findings of previous authors regarding the fat-splitting function of the stomach, but the latter says it is caused by the action of bacteria. Volhard and Stadel have shown that this function is not only present in the stomach but they declare that it is due to a special ferment which they have named "steapsin." They give it a definite relation to the other ferments of the stomach and claim for it clinical importance. From Aldor's investigation of 18 cases he concludes: (1) That a fat-splitting process actually takes place in the stomach. After Ewald's breakfast he found fatty acid varying from 7 per cent. to 10 per cent. (2) The amount of this digestion is variable and independent of the other factors of the stomach chemism. (3) That there is no satisfactory proof that it is due to a specialized ferment.

TWO CASES OF GASTROSUCCORRHEA OR GASTRIC HYPERSECRETION ASSOCIATED WITH ATROPHIC CIRRHOSIS OF THE LIVER.—Hewes (*Boston Med. and Surg. J.*, Aug. 16, 1906).—The author reports two cases of hypersecretion, one of which was a typical case of Reichman's disease and the other was intermittent hypersecretion associated with atrophic cirrhosis of the liver. Special points in connection with the case are as follows: (1) At the time the cases first came under observation the prominent and definite symptoms were those of the stomach. (2) Other conditions ordinarily associated with hypersecretions (gastrectasis, ulcer) were absent. (3) Cirrhosis of the liver was present in both cases. In one, demonstrated in the post-mortem, and in the other, enlarged liver and the marked alcoholic history, made the clinical diagnosis. That stomach disturbances associated with hyperchlorhydria commonly accompany cirrhosis of the liver is not unusual. But that these two cases associated with hypersecretion are the only ones recorded. Regarding the etiology he says (1) that gastrosuccorhea occurs as a neurosis independent of any discoverable pathological lesion in the stomach or elsewhere; (2) that it is ordinarily considered as a secondary condition associated with obstruction of the pylorus, hypomotility and ulcer; (3) it has no definite pathology. In some cases of the disease an infiltration of the stomach wall

similar to gastritis was present. (4) As to whether cirrhosis can be considered a cause of the stomach symptom complex, or whether the latter was due to some other cause operating coincidentally must be regarded as an open question. In favor of a general conception of the (a) Stomach disturbances are commonly associated with cirrhosis; (b) abnormalities of secretion consisting of an increased or more frequently decreased amount of HCl and chronic gastritis have been observed; (c) hemorrhages and hematemesis induced by the cirrhosis occurs and hyperemia of the stomach walls is common post-mortem; (d) absence of other causes; (e) there are no medical observations to support the view that cirrhosis should be produced from the hypersecretion; (f) from these facts it is conceivable that cirrhosis could induce hypersecretion in the stomach of particular individuals.

TYPHOID NODULAR COLITIS.—Whipple (*Johns Hopkins Hospital Bulletin*, August, 1906).—Whipple reports a very interesting case which was characterized (1) by the absence of typical clinical findings of typhoid, the symptoms of which were overshadowed by those arising from the heart valves. (2) The intestinal lesions were confined to the colon (post-mortem). (3) These lesions correspond closely to the descriptions given by Orth and others of the so-called nodular colitis. He could find only two other cases with satisfactory reports, corresponding to this condition, in the literature. His summary in this article is as follows: (1) Typhoid intestinal lesions limited to the colon are very rare; (2) the term "nodular colitis" should be restricted to such cases as show a marked infiltration of the submucosa with wandering cells, giving rise to prominent isolated nodules having no relation to the solitary follicles which are comparatively unaffected. These cases are of rare occurrence. (3) The term lymphatic-hyperplasia may be used to describe the cases having a simple hyperplasia of the solitary follicles of the intestines and a relatively normal submucosa. These cases are commonly found at autopsy.

THE THEORETICAL AND PRACTICAL IMPORTANCE OF "HEAD'S" ZONES IN AFFECTIONS OF THE GASTRO-INTESTINAL ORGANS.—Kast (*Berliner Klin. Wochens.*, July 30-Aug. 6, 1906).—Kast gives Head's theories regarding the superficial sensitive zones of the skin accompanying diseases of intestinal organs, reviews the investigations of other men regarding them (Muller, Willoughby, Scherren, Lenander and others) and reports his investigation on three hundred cases, in two hundred of which he has positive information (gastritis acida 42, carcinoma of the œsophagus 5, carcinoma of stomach 12, stomach ulcer 26, appendicitis 6, acute and sub-acute cholecystitis 6, and the remainder made up of combined conditions, such as chronic intestinal catarrh, heart and lung diseases, anemia, arteriosclerosis, etc.). He concludes from these investigations (1) that zones described by Head do occur; (2) however, that they are very inconstant; (3) that they depend not seldom upon the individual sensibility and are compared to local "neurasthenia"; (4) that the cause of perceptions of the stimulus of internal organs is

yet indefinite. He advances the idea that the oft-repeated muscular contractions may cause local anemia, or by repetition of impulses, fatigue of muscles or ganglia and thereby produce these perceptions; (5) a zone may have different forms of stimuli for its production and a differentiation is not possible for a diagnosis; (6) the zone for ulcer of the stomach is very frequently found in nervous, anemic and poorly nourished patients in whom the pain is severe. But he also found them entirely absent even in these individuals and one can draw no conclusions from their absence; also that it does not place the location of the ulcer; (7) that they are frequently found present in cholelithiasis and appendicitis, but these, especially appendicitis, occur with other conditions, iliocecal and iliocolic diseases, spasm of the colon, etc.; (8) they do not differentiate the conditions of one region; (9) a diagnosis of the stage of the disease cannot be made from them; (10) they are of value in differentiating conditions of one region from another, sometimes when the other symptoms may be common to both; (11) no conclusions as to the pathological conditions can be drawn from them.

THE GLANDULAR POWER AND SIGNIFICANCE OF THE EPITHELIUM OF THE CONVOLUTED TUBULES OF THE KIDNEY AND THE THERAPEUTIC VALUE OF THEIR PRODUCTS SOLUBLE IN WATER.—Renaut (*Bulletin of the Academy of Medicine*).—This author quotes the work of Heidenhain, Regaud, Polecard, Arnold, and Overtone as confirmatory proof that the cortical portion of the kidney is formed by a mass of tubular glands each represented by a convoluted tube of which the epithelium everywhere has secretive activity, except in the ascending loop of Henle, the medullary rays and in the tubes of Bellini which follows these and which are simple excretory ducts. Also that the glomerulus diffuses electively the urinary plasma which it emits as a current in which are dissolved the products of secretion of columnar striated epithelium. That an insufficiency of this emulgent secretion would produce in the active elements of the tubes a condition detrimental to their functorial activity and that this is precisely what occurs in nephritis. In order to make active these substances in the blood itself and in the kidney where they are dormant in these conditions, the author administers extraneous kidney substance. This substance is prepared from pig's kidneys, absolutely fresh, finely chopped and washed in distilled water. As much of the medullary substance is removed as possible. The mince of the kidney is brought to a pulp in a mortar with salt solution and the mass is preserved by cold, decanted after four hours and given in doses of 400 gms. during 24 hours in beef tea. It should not be continued for more than ten consecutive days with a free intermission of four or five days. It is not decomposed in the gastro-intestinal tract and produces very slight disagreeable effects, such as urinerous perspiration, rash and papular eruptions and sometimes nausea and vomiting. The author reports three cases in detail; one of chronic mixed nephritis and one of cardiac albuminuria with cardiac kidney, comparing results with other methods of treatment which had been given to the same cases. In these three cases subjective symptoms were relieved almost entirely, physical signs were modified to the extent of placing the kidney and cardio-vascular system into a state of

competency and the urine* was practically cleared of any abnormal constituents. His conclusions are: (1) That the macerations of the kidney when administered for urinary insufficiency constitutes one of the most active and efficient medicaments which have been utilized up to the present time for the reasons that (a) it restores the annullated kidney; (b) it accomplishes this rapidly and surely; (c) it has an intense diuretic effect; (d) when prolonged sufficiently it maintains and restores the normal urinary mission; (d) it has on deleterious effect upon the diseased kidney. (2) Its advantages over other remedies are (a) it reduces the albumen and corrects the renal insufficiency; (b) on account of the prolonged functorial rest, it favors the restoration of glandular epithelia of the kidney where such restoration is physiologically possible. (3) It is a very superior antitoxin treatment (Dubois) for it produces disintoxication (on the other hand its administration or accumulation in the system may produce slight subtoxic symptoms such as pruritis, urticaria, malaria, sweating and, after ten days, gastric trouble). (4) It has exercised its antitoxic action in a progressive and regular manner without failure. The arterial tension, the inclination of cardiac dilation, etc., have always been retarded under its influence, provided its use has been sufficiently maintained and prolonged. (5) It is a therapeutic method which should be brought into current use, not as a complete substitute for other rational methods but as an adjunct to these methods when they do not produce satisfactory results in correcting the renal insufficiency, especially when it has reached the point of pre-uremic or uremic autointoxication. (6) The great inconvenience consists in the absolute necessity for the daily and most careful preparation of the maceration of the kidney. Neither the glycerine nor the aqueous extract of the kidney substance has been successfully administrated through the digestive tract because they are to say the least, of doubtful value.

THE NUTROPHILES IN BABIES NOURISHED NATURALLY AND ARTIFICIALLY.—Esser (*Munchner. Med. Wochensch.*, Aug. 21, 1906).—Kurtz concluded (1) that the nutrophilic leucocytes with four or five nuclei fragments were increased for the first three or four days in babies who had been nourished by the breast; (2) that this relative number of nucleated nutrophiles was much decreased when mother's milk was suddenly changed to cow's milk; (3) that after a prolonged artificial feeding the blood picture approximated the normal adult blood; (4) that stomach diseases and atrophic conditions would cause a decrease of the number of nuclei fragmented cells and an increase in the mono-nucleated cells. Considering the multi-nucleated cells as the older and protecting cells of the organism, he thinks that perhaps these produce the antibodies in the blood. With their disappearance there would be in the blood a large amount of this protecting substance and with their reappearance the element of infection would be present. Contrary to this conclusion was the possibility that the many fragmented nucleated cells were the older forms of degeneration and were the first to be affected by processes of disintegration.

HEMATOMA OF THE OVARY AND CERTAIN OTHER CLOSELY ALLIED CONDITIONS.—Wilson (*Darcel*, May 26, 1906; Ref. *Post Graduate*, Vol. XXI., No. 5).—Eight cases of this rare condition are reported by Wilson in the original article. The classification is given as (1) Pathology: (a) Hemorrhage into pre-existing cavities, as Graafian follicles or ovarian cyst; (b) hemorrhage into ovarian stroma. (2) As to etiology: (a) Idiopathic; (b) torsion of pedicle, or produced by (1) hernia of ovary, (2) rotation of slightly enlarged ovary; (c) toxic, as (1) acute specific fevers, scarlet fever, etc., (2) profound sepsis, puerperal or general peritonitis or perforating ulcers; (d) ovarian pregnancy. The idiopathic occur with maturation of Graafian follicle. One case is described of the abdomen being opened for what was diagnosticated a perforating ulcer of stomach or duodenum. Another was the case of a woman who died from shock, on the eve of her marriage, from intraperitoneal hemorrhage from a ruptured corpus luteum. The clinical diagnosis is almost impossible to make. The two cardinal symptoms are abdominal pain and uterine hemorrhage.

MECHANICAL EFFECTS OF EXPERIMENTAL MITRAL STENOSIS AND INSUFFICIENCY.—McCallum and McClure (*Johns Hopkins Hospital Bulletin*, August, 1906).—This article exhibits the study of the mechanical effects of mitral valvular lesions on the blood pressure of the femoral arteries, pulmonary arteries and veins and left auricle. Experimental mitral stenosis was produced on animals either by applying a screw-clamp with arms guarded by rubber tube, or passing a suture about the auriculo-ventricular ring, or by introducing a distensible balloon through the auricular appendage. Insufficiency of the mitral valve was produced by means of a hook with a blunt point and inner cutting edge introduced through the left auricular appendage into the left ventricle where the valves and chordæ tendenæ may be cut as desired. The pressure was taken by cannulae connected with mercury manometers adjusted in various parts of the circulatory system, and the one designed to register the pressure in the left auricle tied in the aperture in the auricular appendage. (1) In mitral stenosis the general arterial pressure is decreased and the pressure in the pulmonary arteries, veins and left auricle is increased. Pressure in the systemic veins is little if at all increased, unless there arises a dilatation of the right ventricle and relative insufficiency of the tricuspid valve. (2) In mitral insufficiency the general arterial pressure is decreased in the relation to the amount of insufficiency. The pulsation is not generally altered. Pressure in the pulmonary artery is relatively little altered; with extreme insufficiency it generally sinks with general arterial pressure; with slight insufficiency it rises, but not very high. Pressure in the left auricle is markedly increased and the curves show greater excursions which are due to the contraction of the ventricle. The systemic venous pressure is not greatly altered. From these experiments, and others in which the pressure was taken separately from different chambers of the heart and compared with pressure in different vessel-systems, they conclude as follows: There is less cause for hypertrophy of the right ventricle in pure uncomplicated mitral insufficiency than in mitral stenosis or mitral insufficiency

associated with myocarditis, or other causes for inadequate work of the left ventricle. The cause in those cases in which the registration and the activity of the left ventricle are such that there is a constant residuum of blood in the pulmonary vessels greater than normal, consists in the rapid rise in tension during systole to a point above maximum normal tension requiring an excessive effort of the right ventricle. This is also increased by the reflux of blood from the left ventricle toward the end of systole; the effect of which is felt by the right ventricle before the end of systole. Even when there is no constant residuum of blood in the pulmonary circulation this hyperextension is transient due to the regurgitation toward the end of systole.

EHRLICH'S DIAZO REACTION IN PULMONARY TUBERCULOSIS.—Wolm-gren (*Zeit. Tub.*, VIII-4, 1906).—The author attempts to determine the prognostic significance of the diazo reaction of the urine in pulmonary tuberculosis. He says that (1) a strong positive diazo reaction indicates a terminal stage of the disease and that the duration of life after this is present is at most six, the average two months; (2) a distinct but not strong diazo reaction indicates a duration of life of eighteen months at most, the average six months; (3) indistinct or negative reaction is a favorable prognostic sign even in cases of extensive lung involvement.

THE DIAGNOSTIC APPLICATION OF THE ENDOSCOPE IN DISEASE OF THE LUNGS.—Hermann von Schroter (*Weiner Klin. Wochensch.*, Aug. 16, 1906).—From a large number of cases upon which the author has used the bronchoscope for diagnosis of diseases of the mediastinum and lungs, he reports three cases, two of which were primary carcinoma of the lung. These cases were diagnosticated by means of direct inspection of the lesion through the bronchoscope and he says he believes that by the use of the bronchoscope many malignant growths of the lungs can be diagnosticated positively, but that the diagnosis can also be made in many cases without this aid (physical findings, x-ray, etc.). That only when the differential diagnosis as to the pathological process of the lung and mediastinum is to be established are the bronchoscopic and laryngeoscopic examination of value. In primary carcinoma of the bronchi or oesophagus, tumors of mediastinum and aneurism, these special means of diagnosis are of great help and may be combined with esophagoscopy. He does not consider an aneurism as a special contraindication of examination of the trachea and bronchi or esophagus, and he concludes that bronchoscopy is indicated and of value in indefinite diseases of the lungs as an aid to diagnosis.

PATHOLOGY AND BACTERIOLOGY.

IN CHARGE OF

CARL FISCH, M. D.

EXPERIMENTAL STUDIES ON CARCINOMATA OF MICE.—Ehrlich (*Arb. ausd. Koenigl. Inst. fuer Experim. Therapie zu Frankfurt a. M.*, Heft. 1, 1906. Jena. Fischer).—The twenty and odd pages of this work weigh more than a whole room in a library filled with what is written so far on the nature of carcinomatous tumors. Ehrlich's work bids fair to form the first secure stepping stone in the solution not only of problems of cancer, but of general biology. Heretofore investigations into the origin and growth and biologic character of carcinoma and other tumors always began by searching for a demonstration of preconceived ideas; that all of it failed is well known; so well known that we became despondent, and lately a lethargic state had obtained in the investigation of cancer questions. The origin of cancers has remained obscure after the conviction was gained that the different explanations proposed were not based upon established facts. The most varied hypotheses were advanced, but none of them bore the light of scrutinizing investigation. It is true that our detailed knowledge of cancer has been greatly increased through the work of single investigators, cancer laboratories and other institutions, but it is the general opinion that this work has not advanced us one step in penetrating into the mysteries of malignant tumors. The study of animal tumors and the demonstration by Jensen of the transplantability of carcinomata, occurring spontaneously in mice, on other animals of the same species, offered a prospect for hope. Here also, however, it must be said that in spite of a great amount of careful and valuable work the results remain disconnected and without meaning. Not until Ehrlich considered its nature and possible value was a solution offered concerning these primary problems. It at least furnished a means for experimentation after it had created a working basis, a basis that until then only yielded isolated data without definite relation to each other. Ehrlich studied the work that had been done by others, added to it by exhaustive and systematic investigation of a series of nearly 100 primary mouse carcinomata, and thus gained the possibility of comparison; comparison led to experimental research in directions suggested by it. The results of his work have been so definite that they will mark the beginning of a period that has at last opened a way to reveal the secret of tumor growth.

Ehrlich's attention was first directed to the difficulty of transplantation of mouse carcinoma to normal mice. The number of "takes" is only two per cent. On the other hand he succeeded gradually in increasing the virulence of such a tumor, that is the number of "takes," by successively transplanting from the primary spontaneous tumor the secondary tumors grown in the infected mice. Thus he obtained in some cases, tumors in which the "takes" amounted to from 90 to 100 per cent. This he could explain only as being due to a form of immunity in non-susceptible animals. The study of this immunity led to the most surprising

findings. A certain mouse sarcoma is implantable on rats where it grows for a short time very rapidly, then grows slowly and gradually disappears. If at the time of its growth in the first rat it is implanted on a second rat there is in no case a "take." If it is implanted into a mouse it grows as before and shows all of its virulence as in the primary mouse. These experiments show that the immunity of the rat cannot be due to antibodies because in that case even the initial growth would not be possible. During the limited time of its growth, however, no antibodies are produced because if transplanted to a mouse it exhibits its typical character. Ehrlich's interpretation of this phenomenon is very original; the assumption of a substance, present in the mouse and absent in the rat, necessary for the proliferation of cancer cells, a substance that is food for them and is assimilated. The transient growth in the rat is due to the presence of this substance in the transplanted piece of tissue; it enables the latter to grow for awhile, but after it is exhausted the growth must cease. An analogon for such conditions is presented in the cultivation of the influenza bacillus from sputum where the bacilli are readily grown from sputum on ordinary media though no culture from these growths can be made. This is due to the presence of some hemoglobin in the sputum inoculated which is absent in the second culture and which we know is essential to the growth of the bacillus. For this reason Ehrlich calls this immunity atreptic. The substance present in mice is certainly one that is assimilated by all of their cells in different degrees according to the functions of these cells in the organism. In other words, the different cells have for it a different degree of affinity as for other nutrient substances, perhaps a smaller or larger number of receptors. If the degree of affinity for carcinoma cells and for tissue cells is the same, no proliferation of the tumor will occur; if the number of the latter is diminished the carcinoma cells will draw a larger supply of the substance, their avidity will be greater and a more active growth will ensue. A very interesting explanation of the frequent absence of microscopically visible metastases in cancer of mice (microscopically they are always demonstrable in the lungs) on the basis of this atreptic immunity cannot be detailed here. Nor can more than a rough outline be given of the many observations that led to the author's conclusions.

An active immunity can be demonstrated in animals that are inoculated with cancer material, or in which a cancer disappears spontaneously as has been observed in a number of cases. For these experiments tumors of the utmost virulence were used (100 per cent.). The results of such a second inoculation have been negative in all cases. Even those mice that had been inoculated without success with one of the primary not very virulent growths, were immune against the injection of the most virulent form. In some instances this active immunization caused the disappearance of a growth produced by a previous inoculation. Ehrlich's experiments are so definite that the subject of an active artificially produced immunity from cancer as regards animals is an established fact. The antibodies produced by it are not specific since they seem to act as well against carcinoma as against sarcoma; furthermore, experiments have made it highly probable that other tumors are influenced. Ehrlich

has had very suggestive results with a mouse chondroma. According to his side-chain theory this is explained by the presence of at least some receptors identical in all cells of an organism.

This interpretation of the development and growth of malignant tumors is based on facts; the exactness and reliability of the experiments that established them can in no way be doubted. Ehrlich's work does not touch directly upon the question of origin. He accepts the congenital origin from displacement of fetal cells, the trend of opinion originated by Cohnheim. He has emphasized this theory by stating that in his experience he has met with instances of long lasting latency of the malignant cells. [To this I may add the very frequent clinical observation of metastases occurring many years after removal of the primary focus; the assertion that detached embryonal cells cannot remain quiescent for a long time and that therefore they could not be at the base of tumor formation, is thereby contradicted. What obtains for tumor cells may obtain for embryonic elements. In fact the teratomata directly prove it.—Ed.]

There can be no doubt that Ehrlich's work has opened a way to a practical dealing with cancer and, perhaps, with other tumors. There is no getting around the fact that immunity against their destructive influence can be produced with absolute certainty for animals, at least; whatever the word immunity may mean later, we will be able to protect mice against the spontaneous or artificial growth of carcinoma or sarcoma. Ehrlich himself calls this the first breach in the fortifications of the enemy. It may take a long time till the conquest is complete, but the strength of the enemy is already partly undermined and, in a reasonable time human cancer also will be defied.

Many readers and critics of Ehrlich's paper will raise the usual objection that many of its views are based on a theory that is said to have been proved by others to be faulty and not true, as far as truth is concerned in the matter. If Ehrlich has done nothing else than to apply his side-chain theory to a problem of the most intense scientific and practical importance and by this application has arrived at facts which by their very character put the solution of vital difficulties of the human race within our reach, he has again proven the immense value of the heuristic capacity of his theory and added a new laurel to his wreath. As stated above, Ehrlich's paper will open a new era in the fight against malignant tumors, a fight based on definite knowledge and begun with the recognition of the intimate nature of the methods of the enemy. Perhaps the physical chemists and colloidal enthusiasts will endeavor to make Ehrlich's substance X, submissive to their laws; in this they will succeed as little as they did in regard to other antibody reactions. Ehrlich's theory may not hold forever, but for the present it is the only one that permits an extension of our knowledge of many biologic problems and makes us masters of situations, before which any other theory has failed.

EXPERIMENTAL CEREBRO-SPINAL MENINGITIS AND ITS SERUM TREATMENT.—Flexner (*Jl. Amer. Med. Ass'n.*, Aug. 25, 1906).—Flexner's contribution to our knowledge of the etiologic role that the meningococcus plays in cerebro-spinal meningitis is very important and highly suggestive. The study of cultures of the coccus has set into a proper light its

peculiarities of great sensitiveness to osmotic changes and the ensuing easy disintegration. It showed in the filtrates of autolyzed cultures the presence of a toxic substance that in small (0.1 cc.) doses injected intraperitoneally into young guinea pigs, caused death in four to twenty-four hours. That the toxin (endotoxin) contained in them behaved like the so-called aggressins described by Bail was demonstrated by the death of the guinea pigs injected with a mixture of small amounts of the autolysate and of a non-fatal dose of the living cocci. The intraperitoneal injection of cocci into guinea pigs causes peritoneal lesions, an exudate only with slightly virulent cultures. Very virulent forms kill in a time too short to allow of a leucocytic exudation. Whether the effect on an animal is in all cases only toxic or due to the multiplication of the cocci cannot be definitely determined. The probability is that multiplication occurs only to a very slight degree or not at all. In monkeys by virulent culture, a typical picture could be produced by intraspinal injections. The meningeal lesions resemble very much those found in man, an exudation being found at the base of the brain. (An interesting observation is, that in the nasal secretion of these monkeys these diplococci were demonstrated, a point that, considered in connection with the place of injection—spinal canal—throws some doubt on the pharyngeal or nasal port of entrance of the virus into the human subject.) The attempt at producing an anti-serum, a priori not very hopeful, nevertheless, succeeded. Of the animals used, the goat proved to be the most suitable. It furnished a serum which in the dose of 0.1 cc. protected a young guinea pig (adult guinea pigs are not susceptible to the infection) from the effects of the fatal dose of a culture. In four monkeys (*macacus* species) the result was positive in three; the injection was made into the spinal canal with a mixture of antiserum and culture, with the culture and four hours later the serum, and with the culture into the canal and the serum somewhat more than two hours later subcutaneously. One *macacus* injected intra-spinally with serum two hours after the culture injection, died.

Flexner himself sums up the results of his work in the following words: The experiments have possibly some value in aiding us to understand better the manner in which the diplococcus brings about its peculiar effects in human beings. They would also seem to show that the diplococcus is an organism possessing highly interesting and very peculiar biologic qualities. The special experiments dealing with the prophylactic and therapeutic properties of anti-sera prepared from the diplococcus are sufficiently encouraging to be more widely and closely studied. In how far the results obtained on guinea pigs and monkeys can be applied to the prevention and treatment of cerebrospinal meningitis in man is not safe to predict. Should further experiments show that subcutaneous or intravenous injections of culture can favorably modify the experimental disease in monkeys, the case will not be without hope. I do not think that the injection of alien sera into the spinal canal of man should be undertaken until their physiologic action has been worked out in more detail in monkeys. Were it practicable to employ monkeys for producing the anti-sera to be used in man, the danger of serum-intoxication might be lessened, while the good effects of the immunity principles were retained.

DIAGNOSIS.

IN CHARGE OF

ALBERT E. TAUSSIG, M. D.

THE REGISTRATION OF THE BEAT OF THE LEFT AURICLE. Minkowski (*Deutsch. med. Wochenschr.*, 1906, No. 31.)—The pulsating cervical veins register very satisfactorily the changes in blood pressure that occur within the right auricle in cases of tricuspid insufficiency. As yet, however, there have been no satisfactory methods of studying the changes in form of the left auricle, though it is clear that these changes are of still greater importance from their intimate connection with mitral disease. Minkowski's method is as follows: A rather stiff stomach tube is used, with a lateral but no terminal opening. Over the end is slipped a rubber condom which is firmly tied with stout thread above and below the lateral window. The tube so prepared is swallowed and its other end then connected by means of a T tube with a rubber bulb and a manometer. By means of the bulb the tube is then inflated until the condom lies closely against the walls of the esophagus. The manometer will then register upon a revolving drum the changes in pressure at the window of the stomach tube. Soon after having passed the larynx the end of the tube will lie behind the aorta and the apparatus will register the changes in form of that vessel. Somewhat lower, 32-35 cm. beyond the incisors, the window lies behind the left auricle and will register the changes taking place there. As yet the method has chiefly a physiologic interest, but as the writer points out and illustrates by means of an instructive case, the method may well be of value in the diagnosis of obscure cardiac affections.

THE SEDIMENTATION OF SPUTUM BY MEANS OF HYDROGEN PEROXIDE.—Sachs-Mueke (*Muench. med. Wochenschr.*, 1906, No. 34).—If hydrogen peroxide be added to a purulent sputum an active effervescence takes place during which all lumps and masses of pus and tissue are violently torn apart and the sputum converted into a more or less homogeneous mass. Upon being allowed to stand, the sputum separates into three layers; an upper one consisting of froth, a middle clean fluid layer and at the bottom a solid mass consisting of detritus and micro-organisms. In this lower layer, bacteria of all sorts, especially tubercle bacilli, can be found very much more readily than in the original sputum. The addition of one part per thousand of bichloride to the peroxide of hydrogen makes possible a still further extension of the method. If this mixture be placed in a vessel by the side of the patient and the latter directed to expectorate into it, the entire 24 hours' amount of sputum may be collected without danger of infection. Whenever it is desired to examine the sputum, the disintegration and sedimentation will usually be found to have taken place and the material at the bottom of the vessel will be suitable for examination.

EXCEPTIONS TO COURVOISIER'S LAW.—Moynihan (*Edinburgh Med. Jl.*, May, 1906).—As is well known, Courvoisier has established the rule that

in cases of chronic icterus, a large, tense, palpable gall-bladder speaks for carcinoma, whereas a small gall-bladder that cannot be palpated speaks for cholelithiasis. In his extensive operative practice Moynihan has found that this rule holds true in ninety per cent. of all cases. Exceptions to the rule occur, however, in a number of conditions. Thus when a stone in the cystic duct causes a hydrops or an empyema of the gall-bladder, or when to a stone in the choledochus is added an acute cholecystitis, a large palpable gall-bladder will evidently result. On the other hand a carcinoma of the ductus choledochus, or of the head of the pancreas, if combined with a sclerotic cholecystitis, may result in a small, impalpable gall-bladder.

ORTHOPERCUSION, ORTHODIAGNAPHY AND RELATIVE CARDIAC DULNESS.—Treupel and Engels (*Zeitschr. f. klin. Med.*, Vol. 59, No. 2).—The writers have compared the areas of cardiac dulness obtained by various methods of percussion with the picture obtained by means of the x-rays (orthodiagraphy). Of all the methods tested the most accurate results were obtained by means of the so-called orthopercussion. One of the fingers of the left hand is held rigidly bent at a right angle, and using this as a sort of staff-plessimeter, a finger of the other hand percusses upon the distal epiphysis of the first or second phalanx as gently as possible. The outlines so obtained correspond very accurately to the true shape of the heart.

THE DEMONSTRATION OF TUBERCLE BACILLI IN THE BLOOD OF CONSUMPTIVES.—Luedke (*Wiener klin. Wochenschr.*, 1906, No. 31).—Tubercle bacilli have frequently been found in the blood of miliary tuberculosis; the writer, however, has demonstrated their presence in the blood of ordinary pulmonary phthisis. By means of a syringe he took five or ten cc. of blood from a vein and injected this into the peritoneal cavity of guinea pigs. In four cases the animals developed tuberculosis. While a negative result is thus without significance, a positive outcome may in an obscure case have diagnostic value.

LATERAL MOVEMENTS OF THE HEAD SYNCHRONOUS WITH THE PULSE IN THE DIFFERENTIAL DIAGNOSIS OF AORTIC ANEURISMS.—Bocciardo (*Jl. Policlinico*, 1906, No. 2).—In certain cases of aortic aneurism the head is impelled to the right or the left synchronously with the heart beat. In the former case the aneurism usually will be found to involve the descending aorta, in the latter the ascending aorta, the innominate or the right subclavian.

LEUCOCYTOSIS DURING PREGNANCY.—Given (*Jl. of Obst. and Gyn.*, April, 1906).—A marked leucocytosis immediately after labor is without diagnostic significance since it occurs normally. This leucocytosis disappears rapidly and is replaced during the period of involution by a marked lymphocytosis. The more outspoken the latter, the more satisfactorily involution is taking place. Towards the end of pregnancy a moderate degree of leucocytosis is usual.

THERAPEUTICS.

IN CHARGE OF

WALTER BAUMGARTEN, M. D.,

TREATMENT OF ACUTE ARTHRITIS BY THE INTRAVENOUS INJECTION OF COLLARGOL.—Riebold (*Muench. Med. Woch.*, Aug. 7, 1906) used intravenous injections of collargol in 15 cases of various joint affections—7 cases of gonorrheal arthritis, 2 of acute rheumatic polyarthritis, 4 of subacute rheumatism and 2 of septic arthritis. Eleven cases were completely cured, four were improved. The collargol was given in doses of 4 to 10 cc. of a 2 per cent solution, 4 to 8 cc. at the first injection, 6 to 10 cc. in subsequent ones. The frequency of the injection depends upon the individual case. Recurrence of swelling in the joint, return of the fever or pain are immediate indications for repetition of the injections. The primary effect of an injection is an amelioration of pain and an improvement in the general condition. A diminution of the distention of the affected joint may be very prompt, or may require several days. In cases where serious anatomical changes have been produced collargol injections are frequently followed by complete re-establishment of motion.

TREATMENT OF PULMONARY TUBERCULOSIS BY BIER'S METHOD OF PASSIVE HYPEREMIA.—Leo (*Berlin. klin. Woch.*, No. 27, 1906) strives to produce a hyperemia of the lungs by placing the patient on his back and elevating the head and legs. This position is to be retained four hours per day. The method has in the main been successful. In two of the thirty patients hemoptysis occurred; occasionally epistaxis was observed. In some patients dizziness and fulness of the head appeared. In the majority of the cases the posture was well borne. The usual treatment in pulmonary tuberculosis is not to be neglected.

THE INFLUENCE OF MINERAL WATERS UPON THE SECRETORY FUNCTION OF THE STOMACH.—Bickel (*Berlin. klin. Woch.*, No. 2, 1906) finds that the ordinary carbonated waters (Apollinaris) act wholly through their carbon dioxide content, which stimulates gastric secretion. The waters containing chiefly sodium chloride also stimulate secretion. Other alkali salts of hydrochloric acid (selters, emser) act in the same way. The alkaline salines (Carlsbad) have a slight tendency to inhibit gastric secretion, and purely alkaline waters (Vichy) have a more decided inhibitory action. The waters of the class of Hunyadi-Janos produce almost complete inhibition of secretion.

THE THERAPEUTIC VALUE OF HYDROCHLORIC ACID IN DISEASES OF THE STOMACH.—Chase (*Boston Med. and Surg. Jl.*, Sept. 14, 1906) carried out experiments on three cases of chronic gastritis and achylia gastrica. In four experiments small doses of hydrochloric acid were given twenty minutes after a test breakfast, the meal being removed forty minutes later. The total acidity was increased in all experiments, and free acid found in three. When larger doses were given in the full meals, which were removed in one hour, an increased acidity was

noted but no free acid. Enough acid could not be given to make good the deficiency in secretion of acid. Long continued administration of acid failed to increase the secretion of hydrochloric acid, and in one case apparently diminished it. Peptic digestion was on the whole accelerated. The writer concludes that while hydrochloric acid appears to improve certain symptoms, it is doubtful whether, objectively, it influences favorably any function of the stomach.

TREATMENT OF HEMORRHAGE OF THE INTESTINAL CANAL.—Passier (*These de Paris*, 1904) describes the method of Mathieu as follows: An enema of 1l. of hot water at 48°C., containing two grams of calcium chloride, is given twice daily. It is administered very slowly under very slight pressure. At the same time two grams of calcium chloride per day are given by mouth in aqueous solution and, if necessary, small doses of opium or bismuth may be given. The calcium chloride is usually well borne, though it may produce headache. It should not be used if the kidneys are not sound.

SURGERY.

IN CHARGE OF

WILLARD BARTLETT, M. D.

RADICAL CURE OF FEMORAL HERNIA.—Baldwin (*Lancet. Abs. Jour. Amer. Med. Assn.*, Aug. 18, 1906).—For some years past Baldwin has been practicing the following operation for the cure of femoral hernia, with a uniformly successful result. He has performed the operation about twenty times; all the wounds healed by first intention and caused no trouble whatever. The method of operation is described as follows: A curved incision about 1½ or 2 inches long is made over the saphenous opening. The sac is isolated and more or less cleared of fat. If not already back, the hernia is reduced. A slightly curved hernia director is now introduced up the crural canal in front of the sac and when its point is behind Poupart's ligament it is moved laterally so as for a short distance to strip off the peritoneum from the posterior surface of the transversalis fascia. The point of the director is now pushed farther upward and tilted forward so as to make the aponeurosis of the external oblique muscle project about half an inch above Poupart's ligament. A small transverse incision is then made through the aponeurosis, parallel to its fibers, on to the point of the director, which is now pushed up through the opening. The latter is only just large enough to allow of this being done. A sinus forceps, Spencer Wells forceps, or small nasal polypus forceps—the last, being slightly curved, is more convenient—is now introduced through the opening, passed behind Poupart's ligament, and made to project from the saphenous opening; as this is done the director is withdrawn; in its descent it guides the forceps and prevents it from catching. The fundus of the sac is now seized by the forceps, which is completely withdrawn, dragging the sac out through the opening in the external oblique aponeurosis. The

sac is pulled out as much as possible and ligated at the top of its neck. By this maneuver no pouch is left in which recurrence may take place. A suture is then passed through the fundus of the sac, the suture is drawn through to its middle and then tied, thus leaving two free ends of equal length, or this may be done before the sac is pulled up through the opening in Poupart's ligament, the thread being seized by the forceps and used to pull up the sac. If the sac is large, however, the thread may tear out and time be lost. One end is threaded in a strong curved needle, one which will not rotate in the forceps which grasps it. The needle is now passed backward and forward through the sac several times, starting at the fundus and finishing at the neck, as described by Macewen, for puckering the sac. The needle is grasped in forceps, or a needle on a handle may be used, and its point is passed through the hole above Poupart's ligament, through the neck of the sac, down to the transverse ramus of the pubes, then by a turn of the wrist the point is made to slide forward across the pubic bone, as close to it as possible, then to pierce the pectineus muscle and to appear through the inner part of the saphenous opening. The needle is pulled through, bringing its thread with it. By drawing on the thread and by tucking the sac back again through the hole above Poupart's ligament by means of a stout probe or similar blunt instrument, the sac disappears from view and comes to rest in a puckered-up condition behind the transversalis fascia and at the top of the crural canal, which it effectually roofs in. By this time the other end of the thread is hanging out of the opening above Poupart's ligament. It is tied rather firmly, but not too tightly, to the thread which projects from the saphenous opening; this fixes the sac in its place, and fixes Poupart's ligament to the pectineus muscle, so obliterating the crural canal. If necessary, a second suture may be put in for this purpose, but nearer the pubic spine. A suture is put in to close the hole above Poupart's ligament and the skin incision is closed. Thus there are three distinct checks against the recurrence of the hernia: (1) The sac is ligatured higher up than is possible by the ordinary method and leaves no peritoneal pouch; (2) the sac is used as a buffer or roof above the crural canal; and, (3) Poupart's ligament is approximated to the pectineus muscle and obliterates the crural canal. It may be urged that the sac will slough and cause trouble. This does not take place. It no doubt becomes vascularized, converted into granulation tissue, and ultimately into fibrous tissue.

In strangulated hernia, when it has seemed safe to leave the sac, and when time was precious, the author has modified the operation by pushing the sac up through the canal, after having made a little space for it as before, and then sutured Poupart's ligament to the pectineus muscle.

ON THE TECHNIC AND THE RESULTS IN THE EXCISION OF CANCER OF THE HEAD AND NECK.—Crile (*Penn. Med. Jour.*, Sept., 1906).—Cancer of this region rarely show secondary foci because of the distribution of lymphatics. The collar of lymphatics of the neck forms an extraordinary barrier through which cancer seldom penetrates. Metastases when they do occur, are always somewhere within this lymphatic collar and accessible, consequently this region offers a more favorable field for operation than cancer of the breast, stomach and rectum with their metastases. Incom-

plete operations only cause greater dissemination and more rapid growth. The logical technic is that of block dissection of the regional lymphatic system with removal of the primary focus as is done in the Halstead operation for cancer of the breast. The handling of all carcinomatous tissue should be avoided so long as the lymphatic system remains intact for the further dissemination of the growth. The immediate dangers attending such operations are, infection, local and broncho-pulmonary, then hemorrhage, shock and exhaustion. The greatest infection danger is when the mouth or air passages communicate with the dissection. In cancer of the tongue or larynx, a preliminary tracheotomy is attended with a wall of granulations which is a protection to the pulmonary organ. In cancer of the tongue the anesthetic should be given through two rubber tubes passed into the pharynx opposite the epiglottis, through the nares. Then after pulling the tongue forward, gauze is packed into the pharynx which prevents the inspiration of blood at the time of operation and eliminates the danger of broncho-pulmonary infection from this source. Arterial hemorrhage is best controlled by temporary closure of the common or external carotid. Permanent closure of the common carotid should be avoided. Venous hemorrhage may be minimized by placing the patient in the upright position and making a sufficient and even pressure upon the lower extremities, and the trunk up to the costal borders to prevent gravitation of blood.

The important shock-causing factors are the number and intensity of surgical contacts, as forcible retraction, vigorous sponging, blunt dissection, etc., loss of blood, mismanaged anesthesia and the duration of the operation. The principal factors causing collapse are, interference with the vagus, hemorrhage, air emboli and anesthetic accidents. Consequently causes of shock and collapse should be avoided as much as possible. The paper is based on a personal experience of one hundred and thirty-two cases. The immediate mortality rate was eight per cent. Crile believes that the complete block dissection will give as good a cure per cent. here as the operation for cancer of the breast, if not better. On account of the field being exposed, earlier diagnosis of cancer of the head and neck should be made than in the case of the stomach, intestines, or even the breast, thus giving an opportunity for early operation.

ANTITETANIC SERUM IN FOURTH OF JULY INJURIES.—Scherck (*Jour. A. M. A.*, Aug. 18, 1906).—Scherck gives the result of 170 cases of injury incident to the Fourth of July celebration in which he used antitetanic serum without the development of a single case of tetanus. The injuries were of the usual Fourth of July character, consisting of wounds caused by toy pistols, giant crackers, etc. The cases were handled at the City dispensaries of St. Louis. The following procedure was resorted to in each case: 1. Free incision of every wound. 2. Thorough removal of all foreign material from wound. 3. Cauterization of wound with 25 per cent. carbolic acid solution. 4. Application of loose wet pack of 2½ per cent. solution of carbolic acid. 5. Injection of contents of package of immunizing serum containing 10 cc. into cellular tissue of abdominal wall; the injection to be made under the most careful asepsis.

The above report of cases together with cases previously reported by

Scherck gives a series of 291 cases in which the serum treatment was used without the development of a single case of tetanus. The fact that in 56 cases treated in 1903 without the antitetanic serum there were 16 deaths from tetanus makes the article convincing. In some cases the serum was injected as late as four days after the injury, yet not a case of tetanus developed.

ORTHOPEDICS.

IN CHARGE OF

NATHANIEL ALLISON, M. D.

THE OPEN TREATMENT OF FRACTURES.—Martin (*Surg. Gyn. & Obs.*, August, 1906).—The cases of recent fracture, uncomplicated by wounds, which imperatively call for surgical intervention, are extremely few. Simple fractures can as a rule be treated by splints and bandages, supplemented at times by extension, with completely satisfactory results. The permanency and completeness of cure are proportionate to the accuracy of reduction and retention. The wounds necessitated by the open treatment of fractures are more prone to suppurate than are those made in the performance of other operations, this partly because foreign bodies are buried in the wound, but mainly because, as a result of prolonged manipulation and rough handling, and the use of tools ill adapted to the purpose, there is left at the end of operation, a large amount of tissue so hopelessly devitalized that an abundant culture material is provided, for even the slight infection which inevitably takes place during the course of the most carefully conducted operation. As to the selection of the individual method of holding bones which cannot be placed in proper relation to each other without operation, the following rules are laid down: Comminuted fractures of the shafts of long bones are best secured by wrapping with silver wire, supplemented by the application of screws or silver plates; oblique fractures, two screws driven in at right angles to the line of fracture, of such length as to pass completely through the bone; transverse fractures of the long bones, the silver plate has its chief applicability. In fractures involving joint surfaces, the catgut or wire suture is most serviceable. Intercondylar fractures are best treated by the application of a rod provided with a nut at each end.

THE TREATMENT OF CONGENITAL DISLOCATION OF THE HIP BY INCISION.—Bradford (*Surg. Gyn. & Obs.*, August, 1906).—After the preliminary stretching, the head of the femur should be reduced by manipulation, as far as practical, and passed under the acetabular rim. The patient is then placed upon the side and incision made, passing from the anterior superior spine obliquely backwards and downwards. When the head is cleared by blunt dissection, the limb should be twisted in such a way as to bring the head as far forward as possible, and a cross-incision made in the capsule, where it is joined to the head. The cut

portion of the capsule on the side nearest the acetabulum should be seized by pressure-forceps and secured by pincers. The attachment of the capsule to the lesser trochanter and to the femoral neck should also be severed. The capsular lumen should then be thoroughly inspected. The head should then be passed through the capsular lumen well into the bottom of the acetabulum. It should here be secured by passing through the neck of the femur silk or chromicized catgut sutures, and tying them with the silk sutures which have been passed firmly through the capsules.

SUBTROCHANTERIC OSTEOTOMY IN ADULTS.—Soutter (*Amer. Jour. of Orth. Surg.*, July, 1906).—The symptoms for which the operation was done were impossibility to stand, pain in the back and knee, or leg, difficult walking, lameness, shortening, stiffness, lordosis and inability to sit, walk or stand. The report includes 25 cases and the deformities were the result of hip-disease. Two cases only had a few degrees of motion. Shortening varied from two and three-quarters to seven and three-quarters inches. The operations consisted of linear osteotomies. The after treatment required rest in a recumbent position for six weeks, with the limb corrected in a plaster bandage, extending from the nipples to the toes. After the sixth week, a short pelvic plaster was applied and the cases were up and about. Ultimate positions 20 degrees to 25 degrees abduction, no permanent flexion, no lordosis. There was no pain or discomfort in any case eighteen months after operation. Standing was easy three to nine months after operation. Health after operation was greatly improved. Relative shortening in 23 cases nothing; in two cases one and one-half inches. One of these two cases had six inches shortening before operation, and the other had seven and three-quarters inches.

FRACTURE OF THE FIFTH METATARSAL BONE BY INVERSION.—Cotton (*Boston Med. & Surg. Jour.*, Aug. 30, 1906).—The consequence of overlooking fractures here is not very grave; probably permanent disability never follows, but it is better to get things right than wrong, irrespective of any serious results from error in diagnosis. The author has recognized six cases in the past three years. The history of trauma, as given by the patients, is not suggestive of violence enough to produce a fracture. The patient has, either through a sudden motion or in a mis-step, trodden on the outer side of the foot. Disability is never extreme. The complaint is that the outer side of the foot is lame, and that the patient cannot rise on the toes. On examination we find a little swelling, with little or no ecchymosis. There is pain and tenderness about the base of the fifth metatarsal, localized and distinctly forward of the back end of the bones. There is pain on pressure inwards of the distal end. If the case is seen late, there will be a callus slight in amount but distinct. Treatment consists in the use of a plantar splint for a week, then adhesive strapping and careful use after ten days.

A STUDY OF PLASTER OF PARIS BANDAGES.—Meisenbach (*Amer. Jour. of Orth. Surg.*, July, 1906).—The essential things of value for a good

plaster dressing for practical purposes are strength, quick set, light weight, ventilation. Chloride of sodium in small amounts hastens the set; in large amounts retards it. In any amount it weakens the dressing by decreasing the crushing force and tenile strength. Dextrin in small amounts strengthens the dressing, but lengthens the time of set in direct proportion to its use. Starch in small amounts adds to the strength. It does not interfere with the set of the bandage. Portland cement, when used in the plaster of Paris bandage, materially strengthens it in all its essentials, at the same time reducing the time of set and density. The dressings where cement is added are of a light sage color and are not easily affected by perspiration. They are much stronger and lighter than pure plaster dressings. The author describes at length his experiments to determine the tensile strength, the crushing force, the porosity and time of set of the various kinds of plaster bandages commonly in use.

MECHANICAL ROTATION OF THE NORMAL SPINE.—Keene (*Amer. Jour. of Orth. Surg.*, July, 1906).—These experiments were made upon two cadavers, one a full-term female infant, the other a male adult of twenty-two years. It was discovered that rotation of the vertebræ may be produced when the extremities of the spine are fixed by pressure upon any of the intermediate ribs; that in general the vertebræ articulating with the ribs on which pressure is applied show the greatest rotation, though exceptions occur that are probably characteristic only of an individual spine; that distortion of the ribs occurs in somewhat of a proportion to the amount of force employed after the initial resistance of the rib is overcome. The most effective points for pressure and counter-pressure are upon corresponding ribs, as far as possible from the mid-line anteriorly and posteriorly. Practical fixation of the upper dorsal spine is attained by locking and holding the shoulders in an extreme backward position.

GENITO-URINARY SURGERY.

IN CHARGE OF

H. McC. JOHNSON, M. D.

LIGATURE OF THE RENAL VEIN.—Jungano (*Ann. des Mal. des Org. Urin.*, Aug. 1, 1906).—After an extended experience in experimental work on animals, and a careful study of the results, the author finds that he must agree with the opinion of those who consider it good surgical practice to do nephrectomy in cases of wound of the renal vein, rather than practice ligature. It is better to preserve the organism from the dangers produced by the presence of an organ undergoing degeneration than to hope for the possibility of preserving it, either through the normal or abnormal collateral circulation. Again, to preserve to the kidney its collateral circulation, it is necessary to respect the fatty capsule, and, consequently, to ligate the vein by the abdominal

route. This procedure is difficult, and exposes the patient to all the perils of prolonged contact of the intestines with the air, with the hope only of obtaining a result almost impossible.

THE ACCURATE DELINEATION OF TUBERCULOUS FOCI IN EARLY DISEASE OF THE KIDNEY IN WOMEN BEFORE OPERATION IS UNDERTAKEN.—Fenwick (Reprint, *British Med. Jour.*, Jan. 27, 1906).—While the diagnosis of primary tuberculous kidney in women is comparatively easy when the cardinal symptoms are present, yet there are certain latent cases in which these symptoms are absent, and in which no symptoms exist to help one to a correct diagnosis of kidney trouble at all. Here the cystoscopic view will lead you to a proper conclusion. The author calls especial attention to the fact that a displaced, retracted ureteric orifice, and a bladder only slightly eroded, mean a tuberculous kidney. Furthermore, the location of the disease in the kidney can be accurately determined, if there is an absence of other infection. There are dense adhesions at the upper and lower poles of the kidney, the ureter is thickened, and the upper and lower calices are eroded by tuberculous ulceration.

That these deductions may be drawn, he explains in the following manner: The retracted, displaced, ureteric orifice points to a thickened ureter, shortening lengthwise. This involves narrowing and obstruction of the channel of the ureter. This again spells back pressure of urine upon the thickened, unyielding pelvis, and a tough renal parenchyma; for all these kidneys are small and tough, and many show, microscopically, interstitial nephritis. This back pressure on the pelvis invariably means that the upper and lower calices will suffer, for the upper and lower poles of the kidney suffer first in all back pressures, consequently the stress of the tuberculosis must fall chiefly on these traumatised areas. Hence they will be eroded. Spreading from the eroded, ulcerated surfaces of the upper and lower calices, and radiating to the cortex, there will be, if the stage be an early one, tuberculous changes. This latter means miliary tubercle and inflammation of that part of the cortex—namely, of the upper and lower poles of the kidney. This, again, demands tough adhesions. A retracted ureter always means a thickened, lead-penciled-sized ureter which can be felt per vaginam, but a thickened ureter is not always a retracted ureter, neither does it always mean tuberculosis. A thickened ureter merely means chronic ureteritis. It is the extreme shortening and retraction of the ureter and of the orifice which seems characteristic of this particular type of renal tuberculosis.

A MODIFIED OPERATION FOR MOVABLE KIDNEY.—DaCosta (*N. Y. Med. Jour.*, Aug. 4, 1906).—In many cases of movable kidney it is unwise to operate at all, the use of a properly applied corset being relied upon to keep the patient comfortable and safe; but in a case in which the kidney exhibits trivial mobility, but in which the range of mobility is found to be gradually and certainly increasing, or in a case of kidney mobility in which there are distinct local symptoms, operation is indicated.

After using various other methods, the author has settled down to the

following operation, and has found it entirely satisfactory in the twenty cases in which he has employed it:

The incision is slightly oblique in order to enable us to remove the appendix if we wish; the exposure of the kidney is identical with the method of Senn. The kidney is brought out of the wound as advocated by Edebohl. The fatty capsule is cut away and the fibrous capsule is either scraped with a needle and thoroughly rubbed with gauze, or, as in some cases seems preferable, is partially or completely removed by the operation of decapsulation. The kidney is replaced and held in place by gauze in the following manner: The ends of two pieces of iodoform gauze are sewed together with slender plain catgut, and thus a piece is prepared for the upper pole of the kidney. Two more pieces are sewed together in the same manner, and thus a piece is prepared for the lower pole. Therefore, instead of passing one long piece of iodoform gauze beneath a renal pole, and being obliged subsequently to pull a long end around under the kidney, when we wish to remove the gauze, we put a sutured piece of gauze under a renal pole and, as the sutures are composed of catgut, they are quickly absorbed. In a few days, the gauze is easily removed, and the suture line being directly under the kidney, there is only a short end to pull around on each side. After the kidney has been restored to position and the gauze has been inserted, stitches of silk-worm are passed and tied at the upper and lower ends of the wound, in order to close partially the muscular, fascial, and cutaneous gap. Through the centre of the wound sutures are inserted, but are left untied, and they are not to be tied until the gauze is removed. This method obviates the necessity of having to give the patient an anesthetic when the gauze is to be removed, and does not leave a large raw surface to be filled in by granulations.

THE TREATMENT OF ECTOPIA VESICAE.—Trendelenburg (*Annals of Surgery*, August, 1906).—During the past fifty years many surgeons have occupied themselves with the solution of this problem, and many have been the attempts to devise a method by the aid of which, even in the severe types of the deformity, a restoration of the normal bladder form and function could be secured. In uncomplicated cases of epispadias, Dieffenbach effected a cure by uniting with sutures. Where the cleft extended into the bladder, he regarded operative interference as practically hopeless. Thiersch then introduced a method by which the defect was covered with a neighboring skin flap. The method of Maydl is characterized by an implantation of the ureters into the sigmoid flexure. Continence thus attained may be made to extend over several hours. The great danger associated with this method is the production of pyelonephritis from the entrance, sooner or later, of some of the intestinal contents into the ureters. Various modifications for obviating this difficulty have been suggested, but none have succeeded in entirely overcoming it.

The author endeavors to aid the direct union of the freshened edges in cases of ectopia by producing a separation of the pelvic bones at the sacro-iliac synchondrosis, in order to provide for a closer approximation of the two halves of the pelvis anteriorly at the symphysis, and

consequently of the edges of the defect. He mentions three cases of bladder ectopia which were operated upon several years ago by his method with excellent results. In all three patients the defect which extended from the umbilicus to the glans penis, is completely closed and no fistulous openings are present. The bladder when distended consists of a spherical cavity lined with mucous membrane. The passage of small concretions is occasionally observed by these patients, but tendency to calculus formation is by no means as marked as in certain cases operated on by Thiersch which the author has had occasion to examine.

Retention of the urine is not complete in any of these three cases, but, by means of a contrivance supplied with a spring which compresses the urethra, they are made very comfortable, and, by proper care and attention, they avoid the production of any odor which would serve to direct attention to their condition. One of the patients remains dry throughout the night. He may be awakened once or twice by the desire to urinate, and, even when he gets up, he can voluntarily retain the urine for several minutes. The fourth patient, a boy of five, could, also, when he tried, retain his urine for several hours when standing or walking, but later on this ability was lost. Both of the two cases last mentioned demonstrate that the physiological factors necessary for both retention and voluntary micturition are present, and they are merely prevented from functioning in a normal manner by certain clinical conditions. The reason for the failure may be accounted for by the fact that the two sections of the pelvis which have been separated, and the sacro-iliac synchondrosis, have a tendency to gradually resume their former positions, therefore the neck of the bladder and the prostatic portion of the urethra, which are closely connected with the pubic bones, are pulled upon to such an extent that the muscular ring can no longer be brought into play. Mobilization of the pubic bones with the help of the chisel, or by dissecting widely the attachments of the urethra and the neck of the bladder to the latter, have in no instance of complete ectopia given a permanent result. Such a procedure is apt to lead to the production of a dense scar along the vesical neck, which, in the event of a secondary operation, will be a source of great annoyance. In cases of epispadias associated with incontinence, as well as in cases with only a partial ectopy involving merely the vesical neck, the prognosis is more favorable. In these transitional types between simple epispadias and ectopia vesicæ there is also lacking a proper union at the symphysis pubis, but the separation at this point is not so extensive and consequently there is much less lateral tension on the neck of the bladder and the urethra after operative closure. In certain cases of epispadias where the infundibulum is narrow, the previously existing incontinence may be overcome by direct suture of the urethra after the free edges of the latter have been freshened. Even if the infundibulum is sufficiently large to admit the tip of the little finger and a slight prolapse of the posterior wall of the bladder follows from coughing or straining, there is still some hope that continence may be restored.

The author feels that it would be wise to go back to the old idea advanced by Denme and Passavant and to make an attempt to bring about the desired changes in the bony structures of the pelvis by orthopedic

measures. Rapidly growing osseous tissues of the young do not offer much resistance to even slight degrees of pressure, provided it is constantly applied. The bone yields and gradually undergoes marked alterations in form and contour, as illustrated by cases of congenital macroglossia and by the feet of the Chinese women. There seems to be no good reason why, with the exercise of time and patience, the infantile pelvis may not be similarly molded in cases of vesical ectopia. The mother may be directed to apply a snug and sufficiently wide rubber band around the child's pelvis and hips for some definite period during the day and night. If this be supplemented by operative division of the pelvic bones at the synchondrosis, it may be possible to bring together permanently in this manner the two halves of the pelvis, and convert the transversely placed oval defect of the abdominal wall into a narrow slit. This would produce practically the same conditions which are present in epispadias associated with a partial ectopia of the bladder, and we should then expect to have the same satisfactory operative result as in the less severe types of the deformity.

GYNECOLOGY AND OBSTETRICS.

IN CHARGE OF

HUGO EHRENFEST, M. D.

HYSTERIC APHASIA, AGRAPHIA AND ALEXIA AT THE APPEARANCE OF FIRST MENSTRUATION.—Vitek (*Abstr. in Zentralbl. f. Innere Mediz.*, No. 24, 1906).—The very irritable girl, fourteen years old, became so frightened at the sight of the first menstrual blood, that she fainted. After consciousness had returned she was unable to speak, although she could see and recognize things. After a few days, when the menstrual discharge disappeared, speech gradually returned. At that time patient observes that she can neither read aloud nor write. The author bases his diagnosis of hysteria upon the following symptoms: Sudden appearance of the pathologic condition subsequent to a psychic trauma, presence of such hysteric stigmata as globus and tenderness to pressure of ovarian region, no lesion of the heart, absence of any paresis in either cheeks or extremities and the prompt relief afforded by suggestive therapy. Vitek explains the condition as a spasm of cerebral vessels, probably of those on the brain surface. An exaggerated vasomotor irritability, especially in neuropathic individuals, is a rather common occurrence at the time of puberty.

THE RELATION OF THE FEMALE SEXUAL ORGANS TO HYSTERIA, HEART FAILURE AND CHLOROSIS.—Diepgen and Schroeder (*Zeitschr. f. Klin. Mediz.*, Bd. 59).—The following are a few of the conclusions drawn by the writers: Women who later manifested the symptoms of hysteria, as a rule, first menstruated rather late in life. In such patients the flow very often is scanty and the interval between menstruation more than four weeks. All these phenomena are best explained as due to a deficient

general development. Hysteria, while very rarely altering either the amount or the interval between the appearance of the flow, forms, however, a frequent cause of dysmenorrhea.

A heart-failure acquired early in life tends to retard the appearance of the first menstruation. In patients suffering from a cardiac lesion the menstrual flow often is scanty. The disease shows very little influence upon the menstrual type. In case of disturbance of compensation the effect upon menstruation is an indirect one, brought about by the impairment of the patient's general condition.

Menstruation, as a rule, appears late in girls who later develop a chlorosis. Often the flow is scanty, returns in intervals longer than the normal, and frequently is accompanied by pain. Again these symptoms can be explained as due to a general underdevelopment. If changes of the menstrual type occur subsequent to the appearance of a chlorosis, they seem in no way to correspond to the varying amount of hemoglobin present in the blood, and, therefore, the conclusion must be drawn that the chlorosis is not a direct cause of menstrual anomalies.

THE INFLUENCE OF HYDROGEN PEROXIDE UPON UTERINE HEMORRHAGES.—Spirt (*Abstr. in Muenchn. Med. Wochenschr.*, No. 31, 1906. Original in Roumanian Literature).—The writer records favorable results with the injection of hydrogen peroxide into the uterus in two cases of hemorrhage. He claims to have checked by means of but two injections, hemorrhages which could not be controlled in any other way. This therapy was first recommended in 1895 by Petit, who used an applicator, while Spirt employs the Braun syringe. [The abstract does not state the nature of the uterine hemorrhage.—Ed.]

IS APPENDICITIS MORE COMMON IN MEN OR IN WOMEN?—Karrenstein (*Deutsche Med. Woch.*, No. 32, 1906).—In view of the fact that it seems to be the general belief that women are more susceptible to appendicitis than men, it is interesting to note that this writer, from the careful study of large statistics concludes that both sexes are almost evenly represented among the sufferers of this disease.

SECONDARY CARCINOMA OF THE OVARIES.—Bland Sutton (*Brit. Med. J.*, May 26, 1906).—From his personal observation the writer is inclined to believe that the majority of all bilateral solid ovarian tumors are of a carcinomatous nature, and, as a rule, metastatic formations. In post-mortem examination of women who died of gastric cancer, in at least ten per cent of the cases metastases are found in the ovaries. The primary carcinoma penetrates to the peritoneal surface of the organ, either stomach or intestine, detached particles are carried into the pelvic cavity and there infect the ovaries, giving rise to the formation of large sized ovarian tumors.

LUMBAR PUNCTURE IN ECLAMPSIA.—Pollak (*Zentralbl. f. Gynaek.*, No. 31, 1906).—In No. 23 of the same journal Thies had given a detailed account of the present experience with lumbar puncture in cases of eclampsia. He came to the conclusion that only in a very few instances

an apparently favorable effect can be noticed. It seems that the puncture shortens the comatose stage but on the other hand it does not seem to have any influence upon the number of the subsequent convulsions. These empiric conclusions, in Pollak's opinion, harmonize entirely with the results of histologic examinations of the central nervous system of patients who died during eclamptic convulsions. Pollak found marked changes in the spinal cord, and also in the nuclei of the motoric cranial nerves, especially of those controlling respiration. That respiration often becomes shallow after lumbar puncture, cannot be explained as the immediate effect of the withdrawal of the spinal fluid, but is entirely due to the extensive degenerative changes in the nuclei of the vagus nerves.

PEDIATRICS.

IN CHARGE OF

ALFRED FRIEDLANDER, M. D.

ENTERITIS AND APPENDICITIS IN THE CHILD.—Guinon (*Rev. Mens. des Mal. de l'Enf.*, August, 1906).—Apropos of the recent discussion at the French Academy on the relation of appendicitis and entero-colitis, Guinon says that conditions differ in this regard in childhood and adult life. He would set up as a proposition, the dictum that in the child there is no appendicitis without enteritis. When the colitis localizes itself at the cecum, there is nearly always appendicitis. It would appear that various forms of enteritis may stand in casual relation to appendicitis in childhood. He believes that appendicitis is really a chronic disease, whose acute exacerbations may be called forth by one of several causes. Among these predisposing causes, infections of the rhino-pharynx, and adenoids must be considered as important. It often happens that the preliminary enteritis is caused by the adenoids. In other cases the adenoids may be the "intermediary" between influenza and appendicitis.

Attention to the condition of the rhino-pharynx, and correction of all forms of enteritis are thus to be considered as prophylactic measures in the prevention, or—in the sense of its chronicity—of cure of appendicitis.

DIPHTHERIA PARALYSIS CURED BY LATE INJECTIONS OF ANTITOXIN.—Comby (*Arch de Med Enf.*, August, 1906).—In 1902 Comby called attention to the value of antitoxin in the treatment of diphtheritic paralysis, reporting several cases. He now reports three more. A man of fifty years, whose diphtheria was not treated by antitoxin, had severe paralysis of the lower extremities later. Rapid recovery under large doses of antitoxin. A girl of four had late paralysis after diphtheria, rapidly cured by large and repeated doses of antitoxin. The third case was similar to the second. Comby believes that for all diphtheritic paralyses, antitoxin should be freely used, and this applies whether the primary diphtheria was treated by the injection of antitoxin or not. It is important

that the dosage used be large enough and sufficiently frequently administered. Accidents following the late administration of antitoxin have not been observed.

SERUM DIAGNOSIS OF TUBERCULOSIS.—Thomesco and Gracowski (*Arch. de Med. des Enf.*, August, 1906.)—Have been working with a modification of the agglutination test for tuberculosis as proposed several years ago by Arloing and Courmont. Essentially this test rests upon the fact that homogeneous cultures of the tubercle bacillus, specially grown, will agglutinate distinctly in the presence of serum from tubercular cases, though the reaction is not as distinct as is the case with the typhoid bacillus. While the details of the study cannot be reproduced here, it may be of interest to give a summary of the results obtained.

In 77 cases of tuberculosis of various forms, clinically diagnosticated, the reaction was positive in 59 cases (76.2 per cent). It is to be noted that the majority of the other 18 cases showed very advanced lesions, some of them being moribund on admission.

Of 59 cases diagnosticated as non-tubercular, or where the diagnosis of tuberculosis was doubtful, 44 gave a negative reaction (74.6 per cent.). Control tests (by means of tuberculin, cytodagnosis, etc.) were made in these negative cases and agreed with the results of the serum test.

Fifteen of this series gave a positive reaction, and in eight of these cases the subsequent course showed the correctness of the test.

The authors believe that a positive reaction is almost pathognomonic for tuberculosis, while a negative reaction does not necessarily exclude its presence. They believe that the method has great diagnostic value.

THE CAUSATION OF INFANTILE CONVULSIONS.—Scott (*The Practitioner*, August, 1906) sums up the causes as follows: As predisposing causes, we have age, heredity and rickets, and as more direct causes, first, cerebral irritation, either from disease, traumatism or shock; secondly, reflex disturbances, which may be numerous and varied. As examples may be cited dentition, gastro-intestinal disorder, worms, peripheral nerve irritation, as in earache or glottic spasm. Thirdly, less common forms, such as at the onset of acute specific fevers, in congenital heart disease and in cases of poisoning. Lastly, the fits may be true epileptic, or as a result of fright or strong emotion—Money's cortical epilepsy.

In the majority of these cases, no one of these causes acts singly; in by far the greater proportion two or more are at work, there being often some underlying condition rendering the subject liable to the precipitation of an attack of convulsions on comparatively slight provocation.

THE SIZE OF THE SPLEEN IN RICKETS.—Cowan and McClure (*Britt. Jour. Chil. Dis.*, August, 1906) have made a study of the exact relationship of enlargement of the spleen in rachitic children to the disease itself. They find that in the literature the statements are indefinite and variable. The following table shows the results of their examination of 417 consecutive cases of rickets as seen in dispensary practice. Every stage of the disease was represented, the large majority of the cases

being active. "Spleen palpable" indicates that the organ could be felt on abdominal examination. The authors believe that Trousseau's contention is correct, when he says that in cases of chest deformity, a spleen may be felt beyond the ribs without being enlarged.

	Under 1 yr.	1 yr	2 yrs	3 yrs	4 yrs	5 yrs	6 yrs	7 yrs	8 yrs
Cases examined....	20	156	126	69	26	11	6	1	2=417
Spleen palpable.....	1	8	4	2	1	0	0	0	1=17(4.07%)

While the spleen was palpable in 17 cases, the authors state that in only eight of these cases were they certain that the organ was really enlarged. From their study [whose results are certainly rather at variance with the ordinarily accepted views.—Ed.] it seems improbable to the authors that splenic enlargement is merely an incident of rickets when the viscus is only palpable in less than 5 per cent of the cases. In their opinion, notable enlargement of the spleen in rachitic children is the result of causes other than rickets itself, the most common of which are splenic anemia and congenital syphilis.

NEUROLOGY.

IN CHARGE OF

SIDNEY I. SCHWAB, M. D.

STATISTICAL STUDY OF THE ETIOLOGY OF EPILEPSY.—Siebold (*Psychiatr. Neurologische Wochenschr.*, Nos. 16-18, 1906).—This is a continuation of the statistical study of Lange made at the same institution five years previous. The present study concerns the material from 1899 to 1906. In this time 913 new cases of epilepsy were admitted to the asylum. A study of this large material deserves attention and the results ought to be of some value. The following are the principal facts noted in the conclusion: (1) Of the 913 cases, 59.2 per cent. were men, 40.8 per cent. were women. (2) 83 per cent. of all the cases were taken sick before the twentieth year. In the first decennium the males predominated, in the second the females. (3) In a fourth of the whole material no definite etiological factor was found. Of the remainder, 55 per cent. showed heredity as the etiological factor most in evidence. This was more pronounced in the males than in the females. Individuals with heredity marked took the disease earlier than those who had none. The heredity coming through the mother seems more dangerous than through the father. (4) Neuro-psychopathical heredity was found in 34.8 per cent. Consanguinity of the parents in 3 per cent. of the cases. (5) Alcoholic excess of the parents was found in 18.8 per cent. of the cases, in the male descendants twice as often as in the female descendants. Alcoholic excess in the parents is many times more dangerous as far as the causation of epilepsy is concerned, than the individual indulgence acquired during early life. (6) Acquired causes were found in 30 per cent. of the cases and of this infectious diseases play the most important role. Bodily injuries were found in 10 per cent. of the cases. In 27 per cent. of the cases the cause of the first attack was discovered.

SENSORY DISTURBANCES IN INCIPIENT PROGRESSIVE PARALYSIS.—Piltz (*Neurologisches Centralblatt*, August, 1906).—An examination of the sensory system of early progressive paralytics to ascertain whether the changes found might have some diagnostic value. The results of the examination of seven cases with this end in view is given as follows: (1) A lessening of the sensibility of the skin to pain, hypalgesia, or analgesia, over the whole surface of the body, with the exception of a small zone about the neck in the form of a collar, a small girdle or corset zone on the trunk and the posterior surface of the lower extremity. In these areas the sensibility to pain is normal or even increased. (2) An increase in the tactile sensibility, hyperesthesia, on the trunk either in the lumbar or dorsal region of the back, in the form of a corset, or in the form of a girdle varying in width.

A CASE OF TABES DURING THE COURSE OF WHICH A CHANCE PROBABLY SYPHILITIC APPEARED.—Verger (*Cardenel Revue Neurologique*, No. 13, 1906).—This is an account of an interesting case in which during the progress of a tabes there appeared an apparently well developed syphilitic chancre. The tabes itself showed a strange tendency to change its type. This change was likewise shown in the post-mortem findings of the spinal cord. In addition there was found a neuritic process in the nerves of the knee-joint corresponding to an arthropathy in this region. At the autopsy the posterior columns were found to be the seat of only a moderate degree of sclerosis, which did not correspond at all to the length or severity of the symptoms, or the duration of the disease.

BLOOD EXAMINATION IN NERVOUS CASES.—Bing (*Berlin Klin. Woch.*, No. 36, 1906).—This article is based upon a careful examination of the blood of patients in Oppenheim's clinic. The following points were noted in the examination: (1) The height of the blood pressure. (2) Variability. (3) Variation under different conditions. (4) The trigeminal reflex, that is the variation of blood pressure by stimulation of the trigeminus at the nasal branching. The blood pressure variations in normal individuals formed the necessary first step to this investigation. Twenty-seven cases formed the material for this study. The following conclusions are noted: In cases of hysteria, neurasthenia and psychasthenia without vascular or cardiac symptoms, notable variation from the normal was not observed. In two cases of Basedow's disease there was found a variable blood pressure. In a case of hysterical convulsion the blood pressure, within five minutes, was 20 mm. In all cases examined of patients who had suffered an apoplectic stroke the blood pressure was found to be higher than normal.

OPHTHALMOLOGY.

IN CHARGE OF

JOHN GREEN, JR., M. D.

RETINAL HEMORRHAGES IN COMPRESSION OF THE THORAX.—Beal (*These de Paris*, 1906).—In compression of the thorax, retinal hemorrhages are rare. They may be macular or peripheric, circumscribed, round, few in number, or single. The prognosis as to vision varies, of course, with the site, a macular lesion being followed by central scotoma. In sudden violent compression of the thorax blood stasis may be the sole cause of the hemorrhage. In cases where the compression is prolonged, physical effort must be included as a factor. Retinal hemorrhages are rarer than facial ecchymoses, because the intraocular counter-pressure upon the retina is greater than the intravascular pressure.

THE FACTORS WHICH DETERMINE THE PRODUCTION OF INTRAOCULAR FLUID.—Henderson and Starling (*Proceedings of the Royal Society*, B. Vol. 77).—Investigating the effect of the rate of production of the fluid, of alteration in the blood pressure in the vessels of the eyeball, the authors found that in every case a rise of intraocular pressure caused an increase in the amount of fluid secreted.

Experiments showed conclusively that the rate of absorption of intraocular fluid is determined (in the absence of any disturbing factors) solely by the height of intraocular pressure.

Their observations tend to support in every particular Leber's view that the intraocular fluid is produced by the ciliary processes solely by filtration, and that the amount is determined by the difference in pressure between the blood in the capillaries and the fluid in the eyeball. In twenty experiments the authors found that the smallest difference between the arterial blood pressure and intraocular pressure was 48 mm. of mercury, and the average difference 85.8 mm. This probably justifies the assumption that there is a difference of at least 30 mm. of mercury between the capillary blood pressure and the intraocular pressure, a difference which would satisfy the necessary conditions for filtration.

The effect of the size of the pupil on the absorption of intraocular fluid was investigated in animals whose one eye was treated with atropine and the other with eserine. Under normal intraocular pressure absorption in the two eyes was practically the same, but on raising the intraocular pressure the rate of filtration of the eye under eserine greatly exceeded that in the atropised eye.

SUMMARY.

1. The intraocular pressure represents the pressure at which the rate of formation of intraocular fluid is exactly balanced by its rate of escape through the filtration angle of the eye.
2. The production of intraocular fluid is strictly proportional to the difference of pressure between the blood in the capillaries of the eyeball and the intraocular fluid.

3. No satisfactory method of measuring the intracapillary pressure in the eyeball has yet been devised. Judging, however, from a comparison of the arterial pressures and the intraocular pressures in a large number of animals under different conditions, there is probably always a difference between the intracapillary pressure and intraocular pressure, which is sufficient to account for the production of the intraocular fluid, without assuming any active intervention on the part of the cells of the capillary walls, or of the ciliary processes.

4. An increased proteid content of the intraocular fluid slows its rate of absorption in consequence of the mechanical hindrance of the proteid to infiltration.

5. Filtration, i. e., the absorption of intraocular fluids, at high intraocular pressures is favored by constriction of the pupil and hindered by dilatation of the pupil. The difference, however, is barely perceptible with normal or low intraocular pressures.

CATARACT EXPRESSION IN THE CAPSULE (SMITH'S OPERATION): RESULTS IN ONE HUNDRED AND SEVENTY-FIVE OPERATIONS.—Maynard (*Ophthalmic Review*, August, 1906).—The initial enthusiasm which greeted Major Smith's operation of extraction in the capsule is giving way to less roseate views as the special dangers of the operation become better known. Maynard, of Calcutta, concludes a full discussion of his personal experience with the operation as follows: The advantages of the operation are (1) only one instrument besides the knife—the iris forceps—is introduced into the interior of the eyeball, and so there is less chance of infection, especially as the piece of iris touched by the forceps is removed; (2) complete removal of capsule and cortex and so better vision, with removal of one of the main causes of indifferent sight after extraction and of one of the minor causes of iritis. Impaction of capsule in the wound, with all of its dangers is avoided also.

The disadvantages of the operation are (1) frequent loss of vitreous with its dangers of detached retina, hemorrhage, increased chance of infection, etc.; (2) prolonged lowering of tension and haziness of the cornea with poor vision; this may occur without prolapse of vitreous; (3) delayed union which may occur even with a conjunctival flap and with a peripheral incision, due to the pressure applied; prolonged redness, lachrymation and chemosis with drawing up of the pupil, are apt to be found in such cases; (4) frequent rupture of the capsule with its bad effect on vision.

As the result of his experience Maynard finds it impossible to recommend the performance of the operation and has returned to the practice of removing lenses in their capsules only when overripe.

EARNING CAPACITY AFTER INJURIES TO THE EYEBALL.—Feilchenfeld (*Zeit. f. Augenh.*, February, 1906).—Among several thousand workers in various workshops, Feilchenfeld found 81 with one eye defective either through accident, or refractive error. In only eight cases was the earning capacity of the man reduced below what it had been or would have been had the subject enjoyed full binocular vision. The economic effect of an injury to one eye depends on the circumstances of each

particular case, but by far the most important factor in assessing compensation must always be that when one eye is incapacitated from any cause it will make all the difference to a man whether or not he has a useful *second* one.

LARYNGOLOGY AND OTOTOLOGY.

IN CHARGE OF

WILLIAM E. SAUER, M. D.

WHAT CAN WE ACCOMPLISH BY THE INTRA-NASAL TREATMENT OF CHRONIC SUPPURATIONS OF THE FRONTAL SINUS, ETHMOID CELLS AND SPHENOIDAL CAVITIES?—Kramm (*Zeitschrift fuer Ohrheilkunde*, August, 1906) believes that we have in the external operation of Killian all that can be desired of a radical procedure, but owing to the fact that there is sometimes considerable deformity and that the operation is by no means to be regarded as a simple one, it should be resorted to only after the intra-nasal methods have failed.

The author has operated on about two hundred cadavers by the intra-nasal route and was able to gain free access to these cavities. He also operated on a number of patients with satisfactory results in all. The methods are described in detail by which the accessory cavities can be radically dealt with intra-nasally. These methods are, with slight modification, those followed by Hayeck, Killian and others.

The author concludes that we can by the intra-nasal route give good drainage to and partially curette the frontal sinus, obliterate most of the anterior, and practically all of the middle and posterior ethmoidal cells and establish a large and permanent opening into the sphenoidal cavity. Should the intra-nasal route fail, the following advantages will have been gained:

1. The mistake of opening a normal frontal sinus will be practically impossible because the absence or presence of a diseased sinus will be fully established.
 2. The size of the frontal sinus will have been determined and the special external operation can be decided upon.
 3. The question of an external operation can now only be considered.
 4. The Killian operation is less dangerous and can be performed in much less time. Often the removal of the frontal process of the superior maxilla will suffice. As a result there will be less scar formation and a minimum of deformity.
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A CURE OF SUPPURATION OF THE MIDDLE EAR WITHOUT REMOVAL OF THE DRUM OR OSSICLES OR LOSS OF HEARING.—Heath (*Lancet*, August 11, 1906).—The author's method differs from the radical mastoid operation in that the antrum is opened and granulations removed and the upper posterior canal wall removed down to the drum, but the drum and ossicles are left intact. The wound is closed primarily and all the treatment is carried on through the canal. Ten cases are

reported in brief in which this operation was done with success. The hearing was markedly improved in most of them. The author does not suggest that this will take the place of the radical operation, but makes a plea that the function of the ear be given more consideration. Should the method fail a radical operation can still be done.

HAY FEVER AND PERSISTENT BRONCHIAL ASTHMA RELIEVED BY TREATMENT DIRECTED TO THE ANTRUM OF HIGHMORE.—Schadle (*Med. Record*, Sept. 8, 1906) reports a case of hay fever successfully treated by washing the antri with a warm boric acid solution until the fluid came away clear and perfectly free from sediment. The sinuses were then freely insufflated with thymol iodide. This form of treatment was continued for five successive days. Complete relief was obtained after the third treatment. The author believes these cases illustrate the intimate relationship existing between a morbid state of the maxillary sinuses and the local and general phenomena symptomatic of hay fever. The antral theory embodying these factors is that the antrum of Highmore provides the secretion which forms the agent that causes the local irritation in the sinuses and nasal passages alike.

THE CLINICAL VALUE OF THE BLOOD EXAMINATION IN OTITIS MEDIA PURULENTA AND ITS COMPLICATIONS.—Hubby (*Laryngoscope*, August, 1906) believes the condition of the blood to be an accurate and delicate barometer of the entrance of pathogenic bacteria and their products. In general, the greater the effect on the blood, the more radical must be the alleviating procedure.

The blood picture in purulent disease of the ear and adnexa is as follows: The hæmoglobin is markedly reduced in amount in septiemia and pyemia. The hemocytes are decreased in numbers in septiemia and pyemia, but the decrease is not rapid. The main value of the blood examination in suppurative diseases of the ear lies in the leucocyte count, simple and differential. It is necessary to make repeated examinations to determine the progress of the process, but the clinical symptoms must be given greater weight than the mere leucocyte determination. Blood tests will prevent the faulty diagnosis of malaria or typhoid fever in suppurative diseases of the ear. In doubtful cases we cannot afford to neglect any possible source of light, and the examination of the blood will sometimes clear the situation.

TREATMENT OF SARCOMA OF THE NASOPHARYNX BY INJECTIONS OF ADRENALIN.—Rhodes (*Jour. A. M. A.*, Aug. 11, 1906).—The prognosis of sarcoma of the nasopharynx is so uniformly bad that any treatment that offers hope for either the amelioration of the symptoms or a possibility of cure, deserves attention. The treatment employed by the author was first suggested by Mahu in 1903, and recently used in a case of carcinoma of the rhinopharynx by Berdier and Falabert with very marked benefit. It consists in injecting five to ten minims of the following into the substance of the tumor: Adrenalin chloride, 0.12 gramme; boric acid, 0.6 gramme; chloretone, 0.025 gramme; distilled water, 15 gramme. These injections were made each day, selecting a

different portion of the tumor each time. The encouraging results of the treatment in the author's case were the immediate reduction in the size of the sarcomatous mass and the temporary alleviation of pain, though the patient died from exhaustion due to the inroads of the disease. In conclusion the writer states that the method merits trial, especially in cases of carcinomata and sarcomata of the throat and nose, in which an unfavorable prognosis, almost without exception, must be made and the earlier it can be resorted to the better. He believes it may be safely asserted that this may replace morphin as an analgesic in these cases and that it has a palliative effect, while we have no proof as yet of its being curative in its action. In operable cases, however, in which delay would be dangerous, a resort to surgery, as heretofore, should be the rule, until the matter has had further trial.

DERMATOLOGY AND SYPHILIS.

IN CHARGE OF

MARTIN F. ENGMAN, M. D.

SPIROCHAETE PALLIDA IN CONGENITAL SYPHILIS.—Entz (*Archiv. fur Dermatol. und Syphilis*, Vol. Band LXXXI heft 1).—This is a magnificently illustrated article showing the spirochæte pallida in all the tissues in congenital syphilis. The heart muscle shows the spirochæte in large numbers. The author followed the method of nitrate of silver impregnation of Levaditi and reduced the silver solution with pyrogallic acid.

PITYRIASIS RUBRA PILARIS.—Brault (*Gazette des Hopitaux*, Aug. 23, 1906).—In the treatment of this disease the author recommends Fowler's solution and non-exciting diet: No alcohol, and patient should be put upon a strict regime. Locally he recommends alkaline baths with soap, ichthyol, oil of cade and pyrogallic acid.

CUTANEOUS TUBERCULOSIS.—Gougerot (*Gazette des Hopitaux*, Aug. 18, 1906).—Cutaneous tuberculosis may be divided into two groups, the typical and atypical, and the transitional stages between them. The first group is admitted by all on account of its characteristic histological structure. The second group is characterized by the absence of bacilli, inflammation, nonspecific, the negative results from the inoculation of animals and inconstant to the injections of tuberculin. In the first group may be included tuberculous ulcers of the skin and mucous membrane; 2nd, tuberculous gummas of the skin and lymphatics, or the so-called scrofulo derma; 3d, lupus vulgaris of Willan and its varieties; 4th, verrucous tuberculosis of the skin or the anatomical tubercle; 5th, tuberculosis vegetante. Under the second group, or atypical cutaneous tuberculosis, may be included, 1st, the lichenoid type (lichen scrofulosorum); 2d, the nodular type (erythema indure of Bazin). Under the small nodules the author classes the *multiple benign sarcoid of Boeck*. Then comes the papulo-necrotic type: a, scrofulous psoriasis of Hutchinson;

b, disseminated lupus erythematosus of Boeck; c, symmetrical folliculitis of Brocq; d, acinitis; e, folliclis; f, acne varioliformis; g, hydradenitis of Pollitzer; h, ulcerating folliculitis of Lukasielucicz; i, hydradenitis of Dubreuille; j, acne telangiectoides of Kopisi; k, acne cachecticorum; l, disseminated furunculosis.

POISON IVY.—Balch (*Therapeutiz Gazette*, Aug. 15, 1906.)—In the treatment of poison ivy it should be borne in mind that the irritating agent is a fixed oil soluble in alcohol and precipitated by lead subacetate. The oil is similar to cardol but is probably not identical. The use of lead salts in dermatitis resulting from action of the oil is rational but the precipitated lead compound must be removed from the skin as it is gradually decomposed. The oil is set free and its action continues. The use of soap and water and a good hand-brush is the simplest method of getting rid of the oil. The action is entirely mechanical and is perfectly efficient. Alcohol dissolves and removes the oil but successive portions must be allowed to flow over the affected part as, after contact, the alcohol may contain sufficient oil to spread the irritation. Ordinary alcohol must be used and not 50 per cent. alcohol, as the latter does not dissolve the oil. The action is purely a solvent one and not one of neutralization. In every case the above methods of treatment are at once effective. Further irritation is stopped and healing of the lesion begins. In some cases when actual sloughing has taken place, a week or two may be necessary for complete healing, but ordinarily two or three days' time is sufficient. The use of ointments, or fatty substances is wrong, both theoretically and clinically, as such substances only serve to spread the oil. It should be remembered that the clothing may have been in contact with the plants and that oil may be transmitted from it to the skin and the irritation continued in this way. The writer has been poisoned by handling shoes worn while collecting the plants a year previously. Pollen from the flowers contains sufficient oil to give rise to a dermatitis in unusually susceptible persons.

OVERTREATMENT OF SYPHILIS.—Fox (*Therapeutic Gazette*, Aug. 15, 1906).—The author remarks that one of the commonest therapeutic errors of the day is the overtreatment of syphilis. In many cases of ordinary syphilis the treatment, so far as the patient is concerned, is worse than the disease. While mercury and iodide of potash will often heal ulceration with surprising rapidity, these remedies will have no effect upon the scar left. Therefore, the results of syphilis are often not amenable to treatment. The dose of mercury has gradually lessened in the last thirty years and the general condition of the patient is of the greatest value in the treatment of this condition. Often the health and habits of the individual are such as to interfere markedly with the action of the specifics.

MEDICAL LAW AND MEDICAL JURISPRUDENCE.

IN CHARGE OF

IRVIN V. BARTH, LL. B.

LIABILITY FOR SERVICES RENDERED TO ANOTHER.—Hays vs. Wabash Ry. Co., (*St. Louis Court of Appeals*, 1906) 95 S. W. 299.—Suit to recover for the value of services rendered by plaintiff as a physician and surgeon in the treatment of one S., who was injured while a passenger on one of defendant's trains. Plaintiff was a practicing physician at Hannibal, Mo., and at the time his services were rendered was in the employ of defendant as local surgeon. When the passenger was injured, on the 17th of October, 1903, the conductor of the train wired plaintiff to be at the station in Hannibal and take charge of the patient. Accordingly plaintiff met the train and conducted the passenger to the railroad hospital, where plaintiff performed an operation, and thereafter continued to give treatment until the 1st day of January following, when he was discharged from his employment by the defendant company. It was a rule of the company that when local surgeons were in the first instance summoned they should immediately notify the chief officers of the company. This the plaintiff failed to do, though he had in his possession a blank furnished him by the company for that purpose.

Plaintiff contended that he was entitled to a recovery for the reasonable value of all the services rendered, while the defendant urged that the services were not rendered at its instance and request, or under any contract with it. The Court allowed a recovery, but only for so much as would constitute the reasonable value of the services in treating the passenger for a reasonable time until defendant's claim agent could have been notified and his answer returned.

The Court said: "In meeting the train at the Hannibal depot, in response to the conductor's telegram, taking charge of S. and removing him to the hospital, and there treating him for such reasonable time as the defendant's claim agent could have been notified of the case and his answer returned, the plaintiff acted strictly within the terms of Section 8 of the book of rules, and, as he did not agree to render gratuitous services for the defendant, is clearly entitled to recover the reasonable value of his services rendered during such time."

NOTE: The principal case suggests the broad and much litigated subject of contracts with physicians for medical services made by other persons than the patient himself. It is the generally established doctrine of the law of implied contracts that where a person requests the performance of a service of any kind, the law raises an implied promise on the part of the person so requesting to pay the reasonable value of the services. In a few jurisdictions this principle is applied without exception to the services of a physician or surgeon, the courts there holding that one who requests a physician to attend another, without disclosing that he is acting only as an agent, becomes liable for the services rendered in accordance with that request. But in the majority of jurisdictions the courts refuse to apply here the general doctrine of

implied contracts, and hold that a person so requesting services of a physician to be rendered another does not by reason only of this request make himself legally responsible therefor, unless, indeed, his relation to the patient was such as to raise a legal obligation on his part to pay for the services. And the relation of employer and employee does not *per se* constitute such a relation as would raise this legal obligation. The exception is founded on reasons of humanity—that one might be prompted to refrain from summoning medical aid, if by so doing he would hold himself responsible for the value of the services rendered.

Missouri is in line with the majority of the jurisdictions. The case of *Meisenbach vs. The Southern Cooperage Co.*, (1891) 45 Mo. App. 232, has become one of the great leading cases upon this subject. There the superintendent of a Cooperage Company sent a messenger to the plaintiff, Dr. Albert H. Meisenbach, summoning him to the factory of the company to attend an injured employee. The Court refused to raise an implied contract on the part of the defendant to pay for the services and in the course of its opinion, said: "The general rule, no doubt, is that where a person requests the performance of a service and the request is complied with and the service performed, the law raises an implied promise to pay the reasonable value of the services. But this implication does not obtain where one person requests a physician to perform services for a patient, unless the relation of the person making the request to the patient is such as to raise a legal obligation on his part to call in the physician and pay for the services. Where a husband calls in a physician to attend upon his wife, or where a father calls in a physician to attend upon his minor child, the law implies a promise on his part to pay the reasonable value of the services, because there is a legal obligation on his part, in either case, to furnish necessities for the patient's benefit. But no such implication arises where one calls in a physician to attend upon a stranger, or upon one to whom he is under no legal obligation to furnish necessities * * *. The reason and policy of this rule are obvious, especially in cases like the present. Where a person is dangerously wounded, and perhaps unable to speak for himself, or suffering so much that he does not know how to do it, any person will run to the nearest surgeon in the performance of an ordinary office of humanity. If it were the law that the person or going for the surgeon thereby undertakes to become personally responsible for the surgeon's bill, and especially for the surgeon's bill through the long subsequent course of treatment, many would hesitate to perform this office, and in the meantime, the sufferer might die for the want of necessary immediate attention."

Six years later, the Kansas City Court of Appeals applied the doctrine of the Meisenbach case to the relation of father and adult child. *Rankin vs. Beale*, (1897) 68 Mo. App. 325. There the father sent for a physician to attend his son, of full age, sick at the father's house. The Court held that there was no legal liability resting upon the father to pay for those services. The Court said: "It has been repeatedly held that a mere request from a father to a physician to attend a child of full age and though sick at the father's house, raises no implied promise upon his part to pay for such medical services."

But the Meisenbach case does not by any means present a hard and fast rule of law. The application of the rule in any particular case is limited to the reason for its existence. Whenever it may be fairly inferred that the person requesting medical aid intended to pay therefor and the physician so understood it, a liability will attach to such person when the services so requested may have been rendered. This was the theory of the case of *McCarthy vs. Railroad*, 15 Mo. App. 385, decided in 1884, cited and differentiated by the Court in the Meisenbach case. In that case, too, a physician was summoned to defendant's factory to treat an injured employee, but the Company was held responsible there because of the fact that the agent who summoned plaintiff was clearly authorized to summon physicians in case of an emergency and that the agent in turn specifically authorized the plaintiff "to go on and treat the patient."

The right of the plaintiff, Hays, to recover from the defendant railroad Company in the principal case seems even clearer than the right of plaintiff in the McCarthy case. Hays was a local surgeon in the employ of the defendant and by the rule of the company the conductors were authorized in cases of emergency to order the services of the local surgeons retained by the company. The inference is clear that it was the intention of both parties that the services rendered should be paid for by the company. The Court in attaching the liability to the defendant was acting within the reason of the law.

REVOCATION OF LICENSE BY STATE BOARD CONSTITUTIONAL.—*Kennedy vs. State Board of Registration in Medicine (Supreme Court of Michigan, 1906) 108 N. W. 730.*—Complainant was a licensed physician and brought suit against the State Board of Michigan to enjoin that body from revoking his certificate. He had been cited to appear before the Board to answer charges on account of an advertisement inserted at his instance relative "to venereal diseases and containing matter of an obscene and offensive nature derogatory to good morals." The Statute specifically conferred upon the Board the power to revoke under those conditions. Complainant contended that a revocation of his certificate of registration is an exercise of judicial power. The Court held that the constitutionality of such provisions has been clearly established by the best considered cases as a proper and legitimate exercise of the police power of the State.

NOTE: The case is in complete accord with the recent Missouri case of *State ex rel McAnally vs. Goodier*, which was the subject of our discussion in our editorial appearing in the April issue, Vol. 13, Number 4, at pages 386-9 of this JOURNAL.

SOCIETY PROCEEDINGS.

ST. LOUIS SURGICAL SOCIETY.

Meeting of May 25, 1906.

IMPORTANCE OF A STUDY OF ANATOMICAL APPEARANCES IN THE LIVING.

Dr. Maurice H. Richardson read a paper with the above title, for which see page 769.

DISCUSSION.

Dr. Tuholske said that any aid in the making of a diagnosis should be striven after. The education of the senses is of enormous value, but notwithstanding all the aids at our command we make mistakes. In making examinations, say about the pylorus, we may find a thickening which will cause us to think we have to deal with a malignant growth. Some years ago he had such a case and made preparations to operate. The pylorus was found hard and firm; he removed a section which was examined at once by the microscopist. The examination confirmed the macroscopical appearance of non-malignancy. In breast troubles he met with comparatively little difficulty in reaching a correct diagnosis although in cases where there was any doubt he always confirmed the diagnosis by a microscopical examination. There can be no question but that great value attaches to a careful examination of the lines of the abdomen in every case in which it is accessible. The speaker felt that he had learned something from this paper that he would use to his own advantage and also to the advantage of his pupils.

Dr. Tupper said he had noticed the odor, referred to by the essayist as an aid in diagnosis. This frequently characterizes abscess of the appendiceal region, but he had not discerned any special difference in that odor from the odor accompanying any suppuration about the intestinal tract. This is specially marked in abscesses about the ischio-rectal space. In operations about the kidney pedicle he had difficulty in seeing very much and depended more upon the sense of touch than upon sight in tying off the vessels and ureter.

Dr. R. J. Terry said it would be impossible at present to study the exact consistency of organs and the colors which obtain in life from the preserved material in the dissecting rooms, and the acquisition of this knowledge has been further removed by the methods adopted for the study of topographical anatomy. He referred to the use of formalin which preserves the conformation and the relation of organs as they exist in the living state, but alters the consistence and color. In Italy the material is dissected without embalming and students get all the advantage of seeing the organs in a fresh state and can note the color of nerves, muscles, vessels, etc. The study of fresh material obtained from the slaughter house is of much use in connection with the ordinary work of the dissecting room and is most necessary at the present time since the attention of students is turned nearly exclusively to the consideration of form and relations.

Dr. Lutz said he would be glad to hear Dr. Richardson's method of procedure for examining the other kidney in operations upon one of these organs.

Dr. F. A. Glasgow thought the suggestion of teaching students the anatomical

appearance of tissues was very important. Plates such as shown by the essayist could be distributed among the students and they could become familiar to a certain extent with the appearances of the tissues. Examinations on the cadaver of course are invaluable, but are not always practicable; when it is done, however, it should be done with the naked hand and not with gloves. Students should be taught to know the feel of tissues after the manner in which the blind are taught to read on raised letters. Nowadays we depend too much upon laboratory diagnosis, he thought. This is a valuable aid, of course, but we must not place too much dependence upon it alone.

Prof. Dr. Duehrssen, of Berlin, said it was a matter of considerable importance that not only the surgeon but the general practitioner should be able to make an exact diagnosis. Speaking from his standpoint as a gynecologist, it was of the greatest importance to make a timely diagnosis of uterine cancer. This diagnosis of cancer of the uterus can and should be made early. The diagnosis of cervical cancer can be made in an early stage in cases where the os is lacerated and the tissues friable. More difficult is the diagnosis of cancer of the uterine body, or of the cervix where the os is closed. He always taught his pupils in every suspicious case to make a curettement of the body of the uterus and to make a separate curettement of the cervix as it might happen that there be a cancer of the cervix, which may be overlooked by curetting only the body of the uterus, which contains normal mucosa. He emphasized the necessity of making careful microscopic examinations in cases of fibroids as these often undergo malignant degeneration which otherwise is easily overlooked. He believed there was a greater responsibility upon the physician if he did not advise operation in cases of fibroids than when he did advise operation for, according to his experience, there die more cases of fibroids not operated upon than when operation is performed. He explained a method of examining the pelvic organs, one which he also employed in operating in that region, used by him since 1890, and briefly described anterior vaginal celiotomy, consisting in opening up the anterior cul-de-sac. The operation is not dangerous and enables one to see all the organs in the pelvis; one operates through this route with as much freedom as through an abdominal incision. Since 1890 he had operated on 1,000 cases in this manner with a mortality of one per cent.

Dr. Richardson said in closing that he had tried upon all suitable occasions to emphasize the importance—when time permitted—of exhausting all methods of diagnosis before advising or performing operations. Not only is a correct diagnosis of the greatest value in itself (for it alone permits selection of operative methods and adequate preparation), but it often contra-indicates operation and saves the patient unnecessary mental and physical suffering. Even if the diagnosis indicates operation, the patient's interests require the most painstaking study, lest something be overlooked which would make operation unnecessary or inadvisable,—lest, for example, an operation be performed upon an enormous irreducible umbilical hernia when the patient has already a hopeless cancer of the breast; or a thyroid tumor be removed when the patient is suffering also from hopeless rectal cancer; or, commonest of all, an operation of convenience rather than of necessity be performed in advanced pulmonary tuberculosis. Every effort should be made to find some good reason for not operating, after every effort has been made to find good reasons for operating.

Dr. Richardson would not by any means belittle laboratory methods; but, on the other hand, he would not admit these methods to be either infallible

or of the first importance. Painstaking laboratory study is of great value, especially when it confirms the conclusions based upon the patient investigations of the physician and surgeon before and during operation.

With reference to the diagnostic value of the sense of smell, Dr. Richardson said that in some diseases the odor is so characteristic that its absence immediately throws doubt upon the diagnosis. He had, for example, seen cases of psoas and lumbar abscess reported as gangrenous appendicitis which he felt sure were not of appendicular origin simply because there was no odor. There cannot be a gangrenous abscess of the appendix without a fecal odor.

In serious operations on the kidney the first and most important thing is to get the patient to bed alive. One must therefore operate in such a manner that hemorrhage will be absolutely controlled. He makes a lateral incision parallel with the external oblique muscles from the last rib downward and forward a sufficient distance. The internal oblique and transversalis muscles are then extensively separated in the McBurney fashion. If the muscles are separated extensively enough, the kidney—except in rare instances—can be brought into full view and within reach of easy manipulation. In the great majority of cases, when the muscles are widely separated, the renal artery and vein can be seen, as well as the pelvis of the kidney, the ureter, and all contiguous viscera. All exploratory and operative methods are then easily carried out. In ligating, Dr. Richardson always ties the vessels separately. In proposed nephrectomies he has used the method mentioned by Dr. Lutz to determine whether the kidney to be left behind is fully able to bear the burden of elimination. If it was a question of removing the kidney, he would first examine the affected kidney through the retroperitoneal incision just described. If the disease indicated nephrectomy, he would then open the peritoneum in front, at the lower angle of the incision, and explore with his hand the other kidney. He would thus be able to judge—from its shape, size, and consistency—whether it was capable of normal urinary elimination.

BOOK REVIEWS.

ORTHODIAGRAPHISCHE PRAXIS. Von Dr. Paul C. Franze. Otto Nemnich, Leipzig, 1906. Preis Mk. 1.80. Bound Mk. 2.50.

This pamphlet contains the theory, technique and method of taking x-ray pictures with mathematical correctness. It is of especial interest to physicians doing radiographic work, and contains eleven illustrations and two plates.

SURGICAL SUGGESTIONS. Practical Brevities in Diagnosis and Treatment. By Walter M. Brickner and Eli Moschcowitz. Surgical Publishing Co., New York, 1906.

This book contains 58 pages of short surgical observations made here and there in the surgical experience of the two authors. They are arranged in logical order and in a concise form. It is an interesting little hand-book, and contains some valuable suggestions.

CHIRURGIE ORTHOPEDIQUE. Par Berger et Banzet. G. Steinheil, Editeur. Paris, 1904.

This is a general text-book on orthopedic surgery. It is profusely illustrated in a modern way, and is especially valuable for its descriptions of operative technique. Article 3, on plastic surgery and the treatment of cicatrices by skin transplantation, is very interesting to the general surgeon, perhaps more than the orthopedist. The chapter on tendon-grafting and tendon lengthening is well illustrated and very instructive.

BODILY DEFORMITIES. Their Nature, Causes, Variety and Treatment. A Series of Lectures by E. J. Chance. Edited by John Poland. London: Smith, Elder & Co., 1905.

This volume contains a series of lectures on the subject of deformities, following the author's own ideas, as a whole; rather than the path marked out by convention in treating the subject of deformities. The author has held the position of surgeon to the City Orthopedic Hospital, London, for the last eleven years, and has treated in that time upwards of 10,000 cases of deformity. The book is illustrated by original drawings and wood-cuts. A synopsis of each lecture is given. The cases described are in many instances unusual and interesting.

HANDBUCH DER GEBURTSHILFE. Herausgegeben von F. von Winckel, Professor der Geburtshilfe in Muenchen. Verlag von J. F. Bergmann in Wiesbaden. Zweiter Band, zweiter Theil.

Another volume has been added to this comprehensive presentation of the science of obstetrics. This book of 800 pages forms the second half of the second volume of this gigantic work. Its nine chapters are devoted to a consideration of the pathology and therapy of pregnancy. Professor Werth, the recognized authority on the subject, writes in the almost 400 pages of the first chapter in a most exhaustive manner on ectopic pregnancy. Four of the chapters, namely, those dealing with diseases of the membranes and the placenta, with the changes occurring in fetus and ovisac after the death of the fetus, and with the etiology and mechanism of premature expulsion of the fetus, are from the pen of Seitz in Munich. Hofmeier of Wuerzburg considers the disturbances of pregnancy caused by a faulty implantation of the placenta;

Chazan, of Grodno, the frequency, course and treatment of abortion. The volume ends with an interesting chapter by Schaeffer in Heidelberg on injuries, traumatisms and operations during pregnancy.

As the publication of this work proceeds, one cannot help being impressed by the wealth of information which here is so ably presented. We cannot add anything to the praise we have already expressed in reviews of the preceding volumes. It becomes more and more evident that the specialist could hardly afford to be without this work, but also that it must prove of necessity the most important reference book to the practitioner, who will find enlightenment and advice for any and every complication of pregnancy and labor which he may encounter in his practice.

THE PRACTICAL MEDICINE SERIES. Under the general editorial charge of Gustavus P. Head, M. D. Series 1906. Volume IV. Gynecology, edited by E. C. Dudley, Professor of Gynecology, Northwestern University, Chicago. Volume V. Obstetrics, edited by Joseph B. DeLee, Professor of Obstetrics, Northwestern University, Chicago.

These two volumes represent No. IV and V of this well-known series, which in about ten volumes annually presents a complete review of the year's progress in medicine and surgery. As heretofore, the volumes cover the field in a most thorough way. While primarily arranged for the use and benefit of the general practitioner, a perusal of the individual volume, which can be bought for the moderate price of \$1.25, is of interest and value to the respective specialists.

SAMMLUNG KLINISCHER VORTRAEGE. Begründet von Richard von Volkmann. Neue Folge herausgegeben von Hildebrand, Mueller und Winckel. Verlag von Breitkopf & Haertel in Leipzig.

We take this opportunity to call the attention of our German-speaking readers to this famous collection of clinical lectures. Each lecture forms a complete and connected presentation of a certain subject of interest. These "Vortraege" can be bought singly at the very low price of 19 cents a number, or can be subscribed for in series. Thirty lectures form a series which cost 15 marks. The three last numbers of the gynecologic series are the lectures of B. S. Schultze in Jena, on torsion of the cervix in the myomatous uterus, of Benno Mueller on the changes of the uterine glands during pregnancy and menstruation, and of O. Schaeffer in Heidelberg, on the mechanical means for the starting of labor, pains and the dilatation of the cervix.

LEHRBUCH DER KRANKHEITEN DES HERZENS UND DER BLUTGEFASSE. Von Dr. Ernst Romberg, o. Professor und Direktor der med. Klinik in Tübingen. Verlag von Ferdinand Enke. Stuttgart, 1906.

This volume, in its combination of acute scientific observation with practical empiricism in treatment, is an example of the best sort of German text-book. Beginning with a general discussion of the methods of examination, the author takes up in turn the organic diseases of the heart, pericardium and great vessels and finally the cardiac and vascular neuroses. It is noticeable that while the bulk of the book is devoted to symptomatology and diagnosis, not as much space is given to x-ray examination in this group of diseases as many of its devotees would consider proper. Nevertheless, the fact that the chief stress is laid upon diagnostic methods at the disposal of the general practitioner, will prove a recommendation rather than the reverse. In the matter of treatment, chief stress is laid upon hygienic, dietetic and hydrotherapeutic methods and, properly, much less upon mere medication. As regards the latter, the author discusses in detail only digitalis and strophanthus, giving passing mention, only, to the other cardiac tonics and hardly alluding to a drug much in use in this country, namely, strychnine. An excellent index closes the volume which

will be found a mine of readily accessible information. It is to be hoped that a translation will soon place it at the disposal of readers unable to consult it in the original.

DIE RUNDSCHAU. Uebersicht über die Fortschritte und Bewegungen auf dem Gebiete der Wissenschaft, Technik, Literatur und Kunst. Herausgeber Dr. J. H. Bechhold. Verlag: H. Bechhold, Frankfurt a. M. X. Jahrgang.

This journal is one of the best of those that attempt to disseminate knowledge of the development of the branches of human endeavor named in the title. It differs greatly from many of such journals in the scientific character which all communications not only appear to have, but really have. The information given and the stimulus prompted by it is always correct and free from fantasticality and speculation. The journal is bound to form a source of healthy instruction in wide circles.

THE AUTO-TOXICOSES, THEIR THEORY, PATHOLOGY AND TREATMENT. By Heinrich Stern, Ph. M., M. D. 12mo. pp. 222. G. P. Engelhard & Co., Chicago, 1906.

This interesting little book is an attempt to bring order into the confused realm of the so-called, auto-intoxications. The author believes with most of us that the word, auto-intoxication, is a much overworked term and is generally used to cover the diagnostic ignorance or indolence of the physician. He tries to free the subject from the vagueness and obscurity that usually characterizes it and to group the true autotoxicooses, as he calls them, into definite, clearly defined classes. A system of therapeutics evolved from toxicological principles and clinical experience comprises the second part of the monograph. The reader, even though he cannot always agree with the author will find here many valuable suggestions.

OPERATIVE OTOTOLOGY, SURGICAL PATHOLOGY AND TREATMENT OF DISEASES OF THE EAR. By Clarence John Blake, M. D., Professor of Otology in Harvard University, and Henry Ottridge, Reik, M. D., Associate in Ophthalmology and Otology in Johns Hopkins University. 1906. D. Appleton & Co., New York and London. Price: Cloth, \$3.00.

This volume, devoted to the surgical pathology and treatment of diseases of the ear, contains 359 pages, including 13 full page plates and 40 illustrations. The majority of the illustrations are very poor, hardly serving the purpose for which they are intended. The first chapter is devoted to the surgical anatomy of the temporal bone and adnexa. The descriptions are especially noted for their brevity. The second chapter devoted to aseptic technique is especially valuable in that the minor details are carefully gone into. Due consideration of anesthesia and anesthetics is also noted. In the chapter on mastoidectomy the authors recommend the blood clot method of dressing as an ordinary procedure in both the acute and chronic cases. The wisdom of this is questionable. They do not endorse the removal of the entire mastoid tip and the extension of the operation to include the root of the zygoma in every case, as advocated by Whiting. Chapter 8 is devoted to adenoids, blood infusion and lumbar puncture. These procedures are described in detail. There is also an appendix which contains some abstract of recent literature with a discussion of the hearing tests as an aid for locating lesions in the tympanum. The book contains a good index.

MANUAL OF DISEASES OF THE EAR, NOSE AND THROAT. By John Johnson Kyle, B. S., M. D., with 160 illustrations. 1906. P. Blakiston's Son & Co., 1012 Walnut st., Philadelphia, Pa.

Scarcely three years have elapsed since the author's Compend of Diseases of the Ear, Nose and Throat appeared. This volume, which contains 595 pages and 160 illustrations, appears under another cover and title. All the chapters

have been much enlarged and more fully illustrated. The chapter on the embryology of the ear, nose and throat does credit to most of the larger works on this subject, as most writers barely touch on the embryology. The chapter on bacteriology and pathology has been largely rewritten and many additions made. It is to be noted that the author inclines to the view of the men who remove tonsils and adenoids with a local or no anesthetic, considering it better to sacrifice a certain amount of thoroughness for safety. All the modern methods of treatment and examination, including the serum treatment of hay fever, the submucous resection of the septum, bronchoscopy and esophagoscopy are briefly but clearly described. In fact all of the important subjects relating to the ear, nose and throat have been well considered, all in all, making it a very handy little work of reference.

MANUAL OF ANATOMY, SYSTEMATIC AND PRACTICAL, INCLUDING EMBRYOLOGY. By A. M. Buchanan, M. A., M. D., C. M., F. R. P. S., Glas. Vol. 1, Osteology, Upper Limb and Lower Limb. Chicago. W. T. Keener & Co. \$2.75 net.

This is volume I of the series designed to cover the whole of human anatomy in a systematic and practical way. The section on osteology contained in this volume treats of the subjects in an exhaustive manner, and gives an account of the ossification of each bone after the description. This alone makes the work one of considerable value. The upper limb and lower limb are described in the order in which they are met with in the course of dissection. The illustrations are done by Mr. James T. Murray, of Edinboro. Most of them are colored and are very similar to the plates encountered in Gray's Anatomy. Many of them, however, are specially executed from original sources.

THE PRINCIPLES AND PRACTICE OF MEDICINE. By William Osler, M. D. Sixth Edition. New York and London. D. Appleton & Company. 1905.

The sixth edition of this work, which has been so favorably received, is marked by much rearrangement of its contents and many additions. The diseases due to animal parasites have been arranged under one section and grouped according to the zoological position of the parasite. The section on nervous diseases has been recast and enlarged. The article on typhoid fever includes recent investigations, and has been much amplified.

THERAPEUTICS: ITS PRINCIPLES AND PRACTICE. By Horatio C. Wood, M. D., and Horatio C. Wood, Jr., M. D. Twelfth Edition. Philadelphia and London. J. B. Lippincott Company. 1905.

This edition has been modified to meet the requirements of the new pharmacœia, and has incorporated in it new sections on local anæsthesia, including spinal and neural, and on expectorants and on disinfectants. Much new classification and rearrangement of drugs has been carried out, as well as the addition of many new drugs.

URIC ACID: THE CHEMISTRY, PHYSIOLOGY AND PATHOLOGY OF URIC ACID AND THE PHYSIOLOGICALLY IMPORTANT PURIN BODIES, WITH A DISCUSSION OF METABOLISM IN GOUT. By Francis H. McCrudden. Published by P. B. Hoeber, New York.

This very extensive and exhaustive volume dealing with uric acid and its decomposition products and the purin bodies is especially remarkable and commendable for its compilation of the literature of this much-discussed subject. It brings up to date the research that has been done on the physiology of the

aric acid, effects of food, alcohol, exercise and physiological functions, and also on the urine and general metabolism, especially in gout, of this vast subject. The research on the chemistry, physiology and pathology of these products with all their intercurrent relationship with the tissues in different organisms (birds, mammals, etc.), are discussed in detail. Haig's view of a pathological importance of uric acid is considered unwarranted. McCrudden's definition of the present status of the fundamental importance of the theory of uric acid metabolism and gout is as follows: (1) The purin bodies only have an influence on the excretion of the exogenous uric acid (Burian and Schur.); (2) many of the old views concerning the solubility of uric acid in water and in the urine, and the effects of alkalis and other agents on the solubility of uric acid have been overthrown (Fischer); (3) the prevailing views concerning the acidity of the urine and the alkalinity of the blood are far from correct; (4) many theories concerning uric acid in the blood and urine are incorrect and form no scientific basis for the alkali therapeutics in gout (His and Hoeber); (5) uric acid is excreted by man in great part unchanged; (6) these experimental data entirely change the old view that uric acid is an antecedent of urea and the destructive metabolism of proteid.

TEXT-BOOK OF MEDICAL JURISPRUDENCE AND TOXICOLOGY. By John J. Reese, M. D. Seventh edition. Revised by Henry Leffmann, A. M., M. D. 1906. Philadelphia: P. Blakiston's Sons & Co.

This is one of the best of the smaller books on medical jurisprudence. It is written more especially for the student, and for that reason there is an almost total absence of the discussions upon mooted points which are so frequent in the larger works upon this subject. The chapters on expert witness and the court work which falls to the lot of the average physician are well written and give all the information that is necessary. An especially valuable part of the book is the toxicology, which contains in as brief a manner as possible the necessary information upon the subject of poisons. It can be said that this book meets the requirements of the student in the best manner possible. In spite of its brevity, the book is surprisingly free from errors. It is written in a style that is thoroughly readable and its spirit is much less dogmatic than is usual in abridged treatises of this kind.

MODERN THERAPEUTICS. Fourth Revised Edition, Adapted to the New (1905) Pharmacopœia. A Text-Book on Modern Materia Medica and Therapeutics. By A. A. Stevens, A. M., M. D., Lecturer on Physical Diagnosis, University of Pennsylvania; Professor of Pathology, Woman's Medical College of Philadelphia. Octavo of 670 pages. Philadelphia and London. W. B. Saunders & Company. 1905. Cloth, \$3.50 net.

This is the fourth edition of a work which gives an outline of modern materia medica with a concise consideration of therapeutic application in each case. It has been revised and adapted to the recent revision of the Pharmacopœia.

CUSHNY'S PHARMACOLOGY. A Text-Book of Pharmacology and Therapeutics: The Action of Drugs in Health and Disease. By Arthur R. Cushny, M. A., M. D., Aberd., Professor of Pharmacology in the University College, London. In one handsome octavo volume of 752 pages, with 52 illustrations. Cloth, \$3.75 net. Lea Brothers & Co., Publishers, Philadelphia and New York. 1906.

The fourth edition of Cushny's admirable text-book on pharmacology and therapeutics, has been published primarily to bring the work into harmony with the new revision of the Pharmacopœia (1905), but all pertinent literature which has

appeared since the publication of the previous edition has been made use of, while some of the older references have been discarded. Many changes in opinion have in this way been recorded.

A MANUAL OF CHEMISTRY. Inorganic and Organic. By Arthur P. Luff and Frederic James M. Page. Third Edition. Chicago. W. T. Keener & Co. 1905.

This book is intended for use in medical schools, and attempts to give concisely those portions of chemistry, both organic and inorganic, which bear on medicine. It is concise, thorough, and fulfils its purpose, but, we imagine, requires a preliminary knowledge of chemistry of some breadth.

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ORIGINAL ARTICLES.

A CONTRIBUTION TO THE HISTO-PATHOLOGY AND THE THEORY OF DRUG ERUPTIONS.¹

By Dr. M. F. ENGMAN and Dr. W. H. MOOK, St. Louis.

From the Laboratory of the St. Louis Skin and Cancer Hospital.

The major part of the material for this work was obtained some years ago at the St. Louis Almshouse, through the courtesy of Dr. Kuntz. To this institution the overflow from the St. Louis Asylum is transferred; the patients consisting mostly of epileptics, imbeciles, cases of dementia, chorea and other chronic nervous affections. At that time in this institution the administration of the iodides and the bromides, was more or less of a routine procedure, therefore it was easy to increase the dose of these drugs in certain selected cases, until a distinct drug eruption was produced. We were thus enabled to control our experiments and to obtain from these cases material for histological examination. At the time of beginning our observations, there occurred in this institution a case of the anthracoid variety of iodide of potash eruption, upon the back of one of the inmates, who had been taking large doses of the drug for some time. From this marked case, down to the smallest erythematous spot, including papules and pustules, histological material was obtained from both iodide and bromide reactions.

Since working at the Almshouse, other material has been obtained from patients in public and private work. As a preliminary to the histologic part of our paper, we might state the following clinical facts observed by us.

In the first place, it was noticed that when an iodide or bromide eruption was induced, that the most marked effect occurred upon points previously inflamed; for example, the increase of inflammatory symptoms in an old acne lesion or in an old ulcer. To prove this, small areas of skin in these cases were irritated by blisters or traumata, which seemed to attract to that point the objective phenomena of the drug eruption.

Published simultaneously through courtesy of *Journal of Cutaneous Diseases*.

¹ Read before the Thirtieth Annual Meeting of the American Dermatological Association, Cleveland, Ohio, May 31, June 1 and 2, 1906.

As iodine and bromine produce similar eruptions and in this respect stand in a class by themselves, for this reason we only worked with these two chemicals.

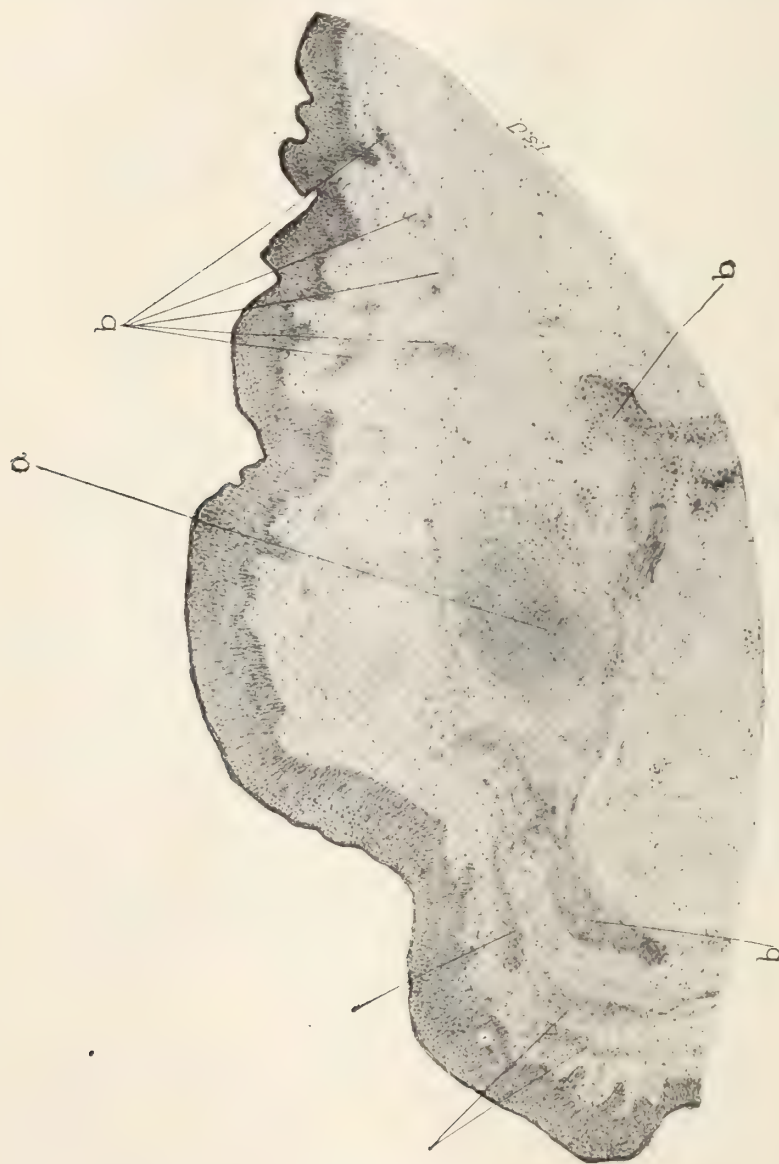


FIG. 1. a The beginning of abscess formation.
b Dilated vessels with increase of cells around them.

In the pus of the iodide lesions we were able to demonstrate in every instance iodine. The lesions produced by bromide were not satisfactorily investigated for bromine, on account of the difficulty in obtaining a chemical reaction. For the purpose of demonstrating the fact that

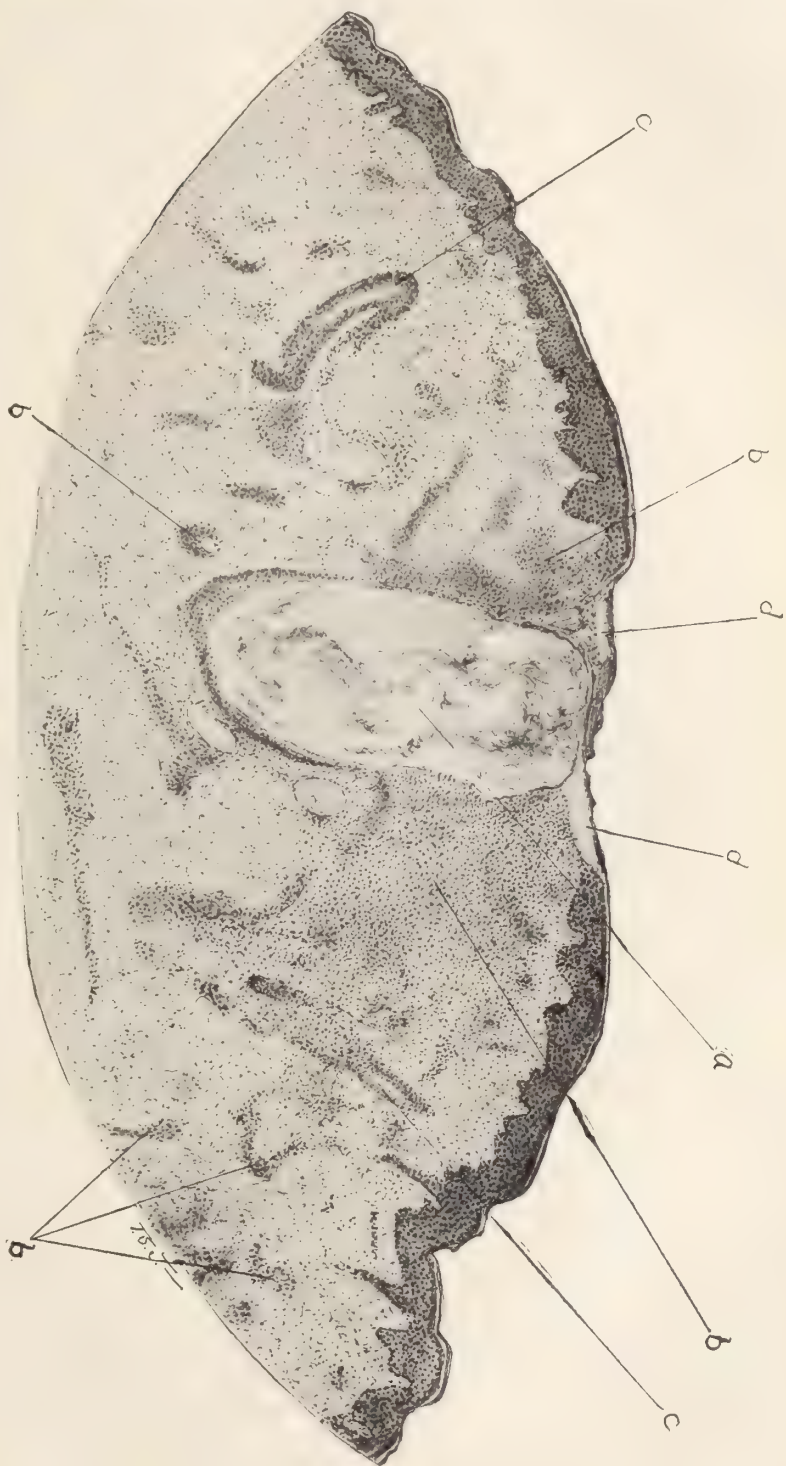


FIG. 2. (a) Old acne cyst showing the new inflammatory reaction induced by the administration of iodine. (a) Cyst. (b) Dilated vessels with perivascular connective tissue infiltration. (c) Hair follicle. (d) Horny plug. (e) Dilated vessel.

iodine occurred in chemical combination in all the tissues of the body, skin free from any symptoms of iodide eruption was blistered, in two cases, and the serum from these blisters investigated for the presence of iodine. In each instance iodine was readily discovered.

Bacteriological investigation of the pus from eleven cases of iodine and bromine eruption, failed to discover micro-organisms except in one case. These cultures were very carefully taken, only the pus from the deeper portion of the unbroken lesions being used. It seems to us it is very necessary in taking such cultures, that the skin should be thoroughly sterilized and the pus from the top of the lesion evacuated before the culture is made. By this procedure there is no danger of secondary con-

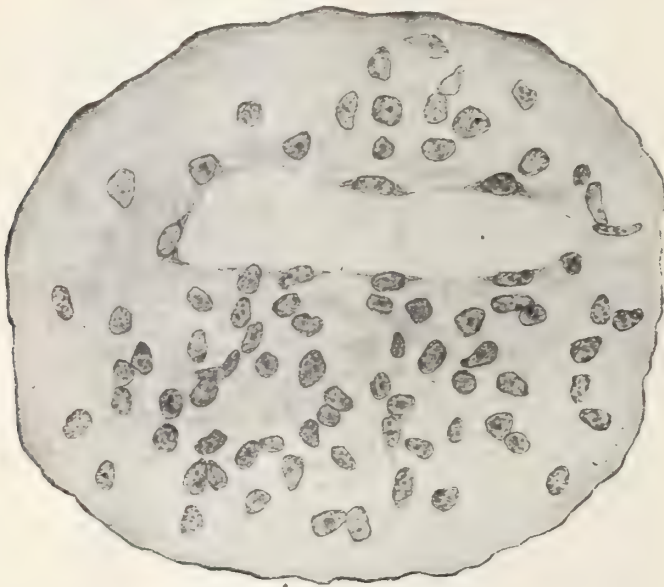


FIG. 3. Dilated capillary showing first stage of inflammatory change, viz.: Increase of connective tissue cells and few lymphocytes.

tamination. In the anthracoid case there were open ulcers which discharged pus freely, but, surprisingly, cultures made from any part of the lesions did not reveal microorganisms. From the quantity of iodine which seemed to be present in the pus in the latter case, it would have been exceedingly difficult for organisms to propagate.

Histo-pathology.—We will not take your time today by giving you a detailed description of the histology of the various iodine and bromine lesions investigated by us, as we feel that this subject, in a general way, has been thoroughly discussed by others and that you are, no doubt, familiar with it. As has already been mentioned, lesions in various stages of development, from the smallest prepapulo-pustular stage

to the large anthracoid variety, were included in our material. The tissues were all fixed and hardened in alcohol, cut and mounted in celloidin, and stained by various methods. It is impossible to differentiate histologically, as well as clinically, between iodide and the bromide lesions. They produce an almost identical histological picture, differing only, possibly, very slightly in the finer technical details. When a section from either of these lesions is observed with a low power, the impression of a dermatitis is at once conveyed. The epidermis is thickened, produced by intercellular and intracellular edema. There is some irritation of the

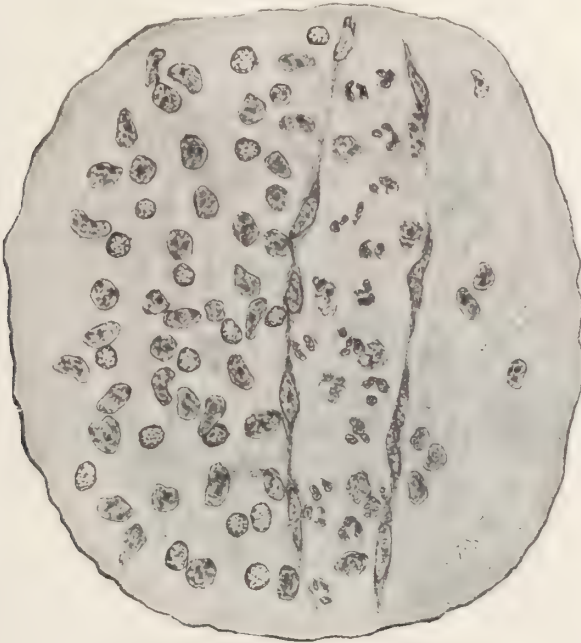


FIG. 4. Dilated capillary showing a later stage of the process, viz.: Increase of connective tissue cells, lymphocytes and engorgement of vessels with polynuclear leucocytes.

epidermis, as here and there are seen evidences of mitosis. The thickening of the epidermis is, however, chiefly produced by the œdema. Coursing through the cutis are large cellular cords, dilated blood vessels. The collagen is swollen and the areas of irritation have a hyalin or glazed appearance. The connective tissue cells are increased throughout the cutis. About the follicles and glands, on account of the increase of cells about their vessels, one sees a dense mass of newly formed cells. Deep in the cutis, and sometimes more superficially, we see dense groups of cells, the beginning of an abscess. These dense groups of cells may occur about a gland or follicle, or may be in no relation to them, as they often

occur free in the center of the corium. In none of our sections does the elastic tissue seem to be affected except in the areas of abscess formation. One can readily see upon observation with the low power, that the point of interest in this study is about the vessels. For this purpose it was found best to begin the study of the vessels in the smallest lesion obtainable, which was a bromide lesion just approaching the papulo-

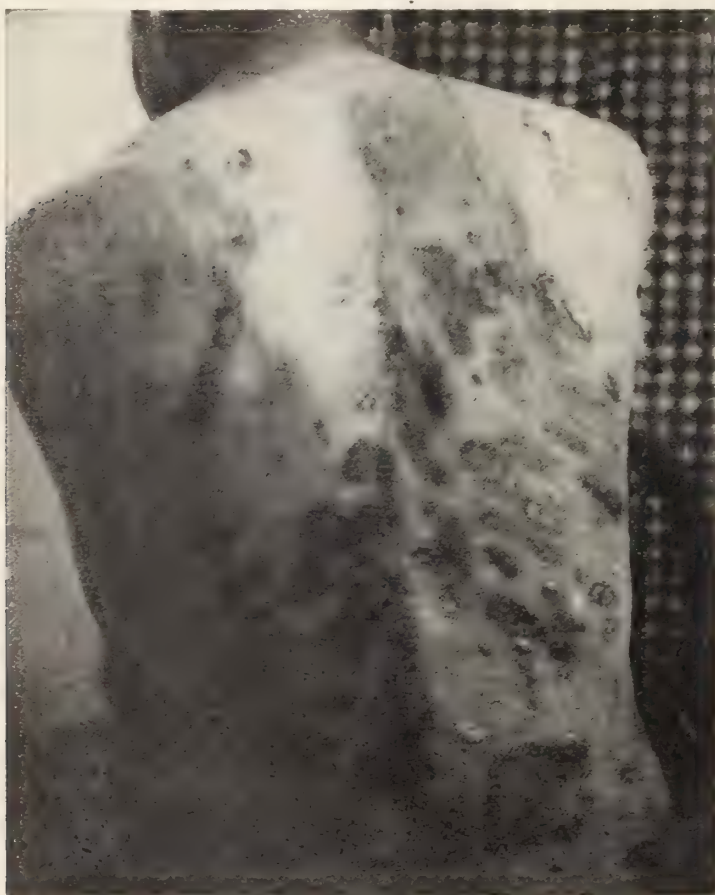


FIG. 5. Anthracoid iodide eruption.

pustular stage. In these sections (Fig. 1) near the center of the derma was found a large mass of cells, the beginning of abscess formation. With the oil immersion, the vessels away from the periphery of the abscess, presented the following appearance: They were dilated, filled with leucocytes, and about them was an increase of connective tissue cells, which seemed to be more pronounced upon one side of the vessel.

This we might designate as the first stage of the pathological change. (Fig. 3.) Later, as we approach nearer the abscess formation there is added to this marked increase of new connective tissue cells, the first appearance of small, round cells, containing a large nucleus, peripherally dotted with fine granules, having somewhat the appearance of lymphoid cells. This is undoubtedly the second stage in the production of the lesion. (Fig. 4.)

As we approach still nearer to the abscess formation, we have a relative increase of the lymphoid-like cells, until we arrive at the vessels, which appear as dense cellular cords under the low power; the infiltration about them being composed of new connective tissue cells and lymphoid-like cells and polymorphonuclear leucocytes. The increase of these cellular elements may occur in any portion of the derma until a dense mass of them is formed, when the collagen takes on a glassy, rigid appearance and polymorphonuclear leucocytes are added to the cellular elements; the collagen then becomes granular; the fixed connective tissue cells become vacuolated, forming the so-called *cellules écumeuses* (the *Schaumzellen* of Unna) to which Pasini refers in his study of bromide eruptions.³ (Pasini thinks these cells become phagocytic but in none of our sections could we verify this fact.) These vacuolated, fixed connective tissue cells, as we reach the abscess, degenerate into granular debris. As the cellular elements about the vessels increase, the change mentioned in the collagen takes place, polymorphonuclear leucocytes are attracted in increasing quantities from the vessels, local nutrition is interfered with and an abscess is formed. The abscess enlarges by the continuation of the same process at its periphery. As the abscess increases in size, the epidermis is flattened out, the structures between it and the abscess are gradually dissolved, the epidermis loses its intrapapular rete pegs, the epidermic cells become flattened until they are finally destroyed by the advancing abscess.

The small abscesses are therefore composed of the fixed tissue cells and the new-formed cells and leucocytes which make up the dense cellular masses seen about the vessels. Histologically, they were also found free of organisms. The epithelia of the coil glands, when the formation of new cells about them seems to interfere with their proper nutrition, show signs of degeneration, and also those of the sebaceous glands and the hair follicles. Histologically the changes in the glands and follicles of the skin were found to be dependent entirely upon the amount of infiltration occurring in the vessels about them; and, as in many instances marked degeneration was progressing in certain portions of the section, while the glands and follicles were comparatively free, it proved to us that there could not be any direct relationship between the excretion of the drug by the glands and the objective symptoms of the eruption. When

³ *Ann. de Derm. et de Syph.*, January, 1906.

a healthy gland is affected it is merely an accident of location, and suffers as any other portion of the skin may suffer from the pathologic changes induced by the drug. The theory that iodide and bromide eruptions are produced by an injury to the glands by the excretion of the drug has been pretty well exploded. The study of our sections proved to us conclusively that this is never the fact, unless the gland be previously diseased. We may reiterate that when a gland or follicle is involved, it is not due to the effect of the drug upon the gland or follicle itself, but to the formation there of inflammatory changes, first induced about the vessels, and affecting in this way the gland indirectly. In fact, the epithelium is nowhere affected except through secondary changes, as one may see in any dermatitis produced by many agents; the epidermis itself presenting only these accidental changes. Iodine and bromine do not seem to have any selective effect upon the tissues, unless it be the production of new connective tissue cells and a local lymphocytosis. A few mast cells could be seen, as in any other inflammatory condition, but no true plasma cells. It seemed to us in a close study of these sections compared with others, that there were more *Schaumzellen* than usually seen in inflammatory areas. They were large, beautifully vacuolated and of great frequency in the upper portion of the cutis. The changes in the vessels seemed to be entirely perivascular. The increase in the connective tissue cells about a capillary is very well demonstrated in the first stages in figure 3, and in its more advanced stages in figure 4.

Producing no specific histologic changes except, possibly, the formation of new connective tissue cells and a local lymphocytosis, and with no relation between the eruption and glandular excretory action, what then is the cause of the production of these eruptions? In the first place, iodine and bromide, we might say, are drugs of standard values in the production of eruptions. We can produce an eruption in any individual, provided a sufficiently large and continuous dosage is carried on. The pathological effects may occur in the form of various types of eruptions, as we well know, but the papule and pustule are the most frequent. When one is taking iodine or bromine, the drug can be detected in all the tissues of the body, and if its administration be sufficiently prolonged, all of the vessels of the body will have an increase of connective tissue cells about them, and possibly the appearance of the small round cells described. In pieces of normal skin from patients taking potassium iodide we found this to be the fact. Therefore we have from these findings the histological material ready at any time for the production of an eruption. This eruption, it has been our experience, makes its first appearance about the sites of previous irritation, the seborrhoic areas, the acne areas, areas of trauma, just as we see the same thing occur in the eruption of small-pox, syphilis and various other disorders due to general toxicosis, the first local appearance being determined at the site of previous points of

pressure or irritation. All are familiar with the suspender eruption of smallpox and syphilis, with the plaster eruption of scarlet fever and measles, and numerous other examples. It seems to use that in iodermia and bromodermia, we have a drug circulating in the body tissues which under certain conditions acts as a toxine, causing at points of local disturbance, all of the symptoms of an inflammation, this inflammation not differing essentially from that produced by other toxic agents.

It may be possible that when a certain state is reached within the tissues a condition of unstable equilibrium between the iodine and the tissue ensues, the chemical action is disturbed, toxic products are formed and we have at this point the production of certain local pathological phenomena. This condition of unstable or abnormal chemical reaction may be produced by previous local conditions in the form of previous local inflammation, and we have then superinduced upon the acne or whatever the previous inflammatory condition may have been, a secondary process in the form of a bromide or an iodide lesion. (Fig. 2.) The previous local inflammation may be microscopic, yet sufficient to disturb the normal chemical reaction there between the tissues and the drug.

This point one of us called attention to in an article upon "Some complications of syphilis of the skin and their treatment," in 1901.⁴ The trend of the remarks referred to, was that we can have—and it is often seen—a severe pathological process superimposed upon a syphilitic eruption by the over-administration of iodine, which is signified in certain cases by the severe and rapid increase of the local symptoms with fungoid or vegetating lesions. This, no doubt, many of us have had in our own experience.

Harrison⁵ uniquely illustrates the fact under discussion. He describes a boy who had been taking bromide, when a bromide eruption was produced upon the leg following a kick.

Laviseur⁶ takes advantage of this fact of iodine seeking inflammatory areas, in the treatment of acne. He gives iodide of potash until the acne lesions are markedly affected through the administration of the drug, when he ceases the administration of the iodide and allows the inflammation then to subside. Excellent results are reported by him by thus substituting one inflammatory condition for another. The affinity of iodine for areas previously undergoing inflammatory changes and its local production in these areas of a lymphocytosis, leucocytosis and reactive inflammatory change, may explain its specific powers in dissolving plasma cell infiltration in syphilis, in producing the iodine laryngitis in smokers and coryza in catarrhal subjects.

⁴ *St. Louis Med. Review*, August 17, 1901.

⁵ *Brit. Journal of Dermat.*, 1901, p. 178.

⁶ *Medical Record*, November 11, 1899, p. 700.

Résumé—The results of our observation upon iodine and bromine eruptions may be concisely stated as follows:

1. The local eruptive phenomena are prone to occur at points of previous inflammation; about comedoes, acne lesions, seborrhoic lesions, scars, traumata, scratches, etc.

2. Traumata, pressure, quick changes of temperature may precipitate an eruption in tissues charged with the drug.

3. Idiosyncrasy or susceptibility may be admitted as it is in other toxic conditions.

4. The glands or follicles of the skin take no active or specific part in the production of the lesions, and when they are involved, it is secondary and passive to inflammatory changes about the vessels and in the connective tissue.

5. The gross histological changes in the skin consist in different degrees of inflammation, from slight changes about the vessels to destructive abscess formation and progressive death of tissue.

6. The minute histological changes or steps to this end may be classed in the following stages: First, increase of connective tissue cells about the vessels. Second, appearance of lymphoid-like cells about the vessels. Third, addition to these cells of trifold leucocytes with granular appearance of collagen and vacuolation of fixed connective tissue cells. Fourth, local increase of all these phenomena and the formation of an abscess.

7. The first and second conditions are found in the normal skin with iodide eruption.

8. The stages three and four, or the addition of leucocytes and degenerative changes, is induced by local disturbance of the normal equilibrium between the iodine combined in the serum and the tissues.

9. This disturbance of equilibrium may be induced by various factors, and when it does occur the resultant product acts as a toxine, which in its turn causes tissue irritation and the production of various local inflammatory symptoms, the type of symptoms and the eruption being dependent upon the character of the individual's reaction to the inflammation thus produced, as in any other toxic condition.

10. This theory may be termed the "Rational theory," as it explains all the symptoms of iododerma and bromoderma in a purely rational, chemical and mechanical manner and does not depend in its elucidation upon the mysterious or purely theoretical action of the vaso-motor system.

DISEASES OF THE KIDNEYS AS INDICATIONS FOR THE INTERRUPTION OF PREGNANCY.*

BY HENRY SCHWARZ, M. D., St. Louis.

Before discussing the indications for the interruption of pregnancy arising from diseases of the kidneys, I deem it advisable to call your attention to the very different significance of induced labor according to the period of pregnancy at which it is to be practiced and according to the purpose for which it is undertaken.

In regard to the period at which pregnancy is interrupted we should speak

(1) Of *Induced Labor*, when the interruption is attempted at or near term;

(2) Of *Induced Premature Labor*, when the interruption is attempted between the 24th and 38th week of gestation, and

(3) Of *Induced Miscarriage*, when the interruption is attempted before the completion of the 24th week.

The induction of labor and of premature labor is practiced either in the interest of the child or in the interest of the mother, while the induction of miscarriage implies the sacrifice of the fetus for the preservation of the mother's life.

If we induce labor in the interest of the fetus we must be reasonably sure of its viability. Such reasonable assurance is present, when pregnancy has reached the end of the 32nd week and when the fetus exhibits sure signs of life. It is true, that the fetus at the end of the 28th week, is by common consent considered viable and that under favorable conditions a fetus of 24 weeks' gestation or less may continue to live, but as a matter of fact the majority of children, born about the 28th week of gestation, die within a short time after birth, no matter how carefully they are tended. Therefore, whenever we wish to induce labor in the interest of the child we should not operate before the completion of the 32nd week.

It is a different matter, when we feel compelled to interrupt pregnancy in the interest of the mother. In that case it is a satisfaction to know, that while we try to save the life of the mother, we do not of necessity destroy that of the fetus, when we induce labor after the completion of the 24th week. By providing incubator, breast milk and skilled attendants for the child we give it a chance to continue to live and this chance increases with every day which pregnancy has been allowed to proceed beyond this critical period.

In the whole domain of obstetrics there is no work more gratifying or reflecting greater credit upon our profession than that of inducing

*A symposium on internal diseases as indications for the interruption of pregnancy, read before the St. Louis Medical Society, October 6, 1906.

labor near term or prematurely in the interest of the child, in cases in which the history of former pregnancies has proven the habitual death of the fetus near the end of gestation or in which former labors point to the improbability of safe delivery at term through the natural passages on account of a moderate disproportion between the fetal head and the maternal pelvis.

We do not expect on this occasion, to dwell on the indications for interrupting pregnancy in the interest of the fetus, but shall confine our discussion to the indications for interrupting pregnancy in the interest of the mother irrespective of the viability of the fetus.

We can display no enthusiasm for this part of our obstetrical work. There can never be satisfaction or glory in the induction of a miscarriage, but it may at times become a stern and sad duty which no conscientious practitioner should shirk.

Not so long ago, when Cesarean section had a mortality of fifty per cent. and more, the higher grades of contracted pelvis seemed to offer a reasonable indication for an early interruption of pregnancy, but at the present time the risk of this operation is not so large that we should hesitate to ask the possessor of such a pelvis, who finds herself pregnant, to assume it. Happily for the peace of mind of the obstetrical world we know now of no conditions and of no diseases, which by their mere presence justify the induction of a miscarriage and happily for the peace of mind of the individual obstetrician, the cases which on account of special conditions call for the induction of a miscarriage are very rare and they are never so urgent but that he could share the responsibility with a fellow practitioner and enjoy the comfort of a consultation.

It is only when two or more reputable physicians are of the opinion, that a pregnant woman is in immediate danger of dying, unless the pregnancy be interrupted, that the induction of her miscarriage becomes justifiable.

To decide in a given case whether or not a woman will die unless she be made to miscarry is a question so hard to answer and one which involves such grave responsibility, that no individual physician should assume its burden.

I hope that I have saved a few lives by interrupting pregnancy, but I positively know that I have failed to save others by trying to avoid the induction of a miscarriage.

Regarding my special task, namely, to define the indications for interrupting pregnancy which may arise from diseases of the kidneys, I beg to state that, in twenty-seven years of special practice, kidney diseases have never called for the interruption of pregnancy except shortly before term, when the viability of the fetus was assured.

When speaking of kidney-diseases in connection with pregnancy, we

must distinguish between disorders that have existed before pregnancy ensued and that are merely complicated by it, and between disorders of the kidneys, which have originated during pregnancy.

Of the first class of cases of which chronic nephritis is the chief exponent, it may be said that as a rule they call for no interruption of pregnancy, especially when the dietetic and other general measures advocated in cases of albuminuria and toxemia of pregnancy are employed. It should be remembered, however, that a great number of these cases (statistics claim over 50 per cent.) lead to the death of the fetus which is not always followed by immediate spontaneous miscarriage, and that the mother must be given the benefit of any doubt about the fetus being alive, when the advisability of inducing labor is under discussion.

It should likewise be remembered that in these cases of chronic nephritis the destruction of tissue is more rapid during pregnancy and that in most cases of retinitis albuminuria in pregnant women, detachment of the retina and atrophy of the optic nerve have rather quickly led to lasting blindness.

While these deplorable complications of an incurable disease may not justify the interruption of pregnancy, they certainly make it our duty to prevent conception in women afflicted with the severer forms of chronic kidney disease and for this purpose it is not sufficient to warn the patient of her increased danger in the event of pregnancy, but we must instruct her to employ means which will enable her to perform her matrimonial duties without the chance of conceiving.

Of the second class of kidney disorders, including the toxic albuminuria of pregnancy with or without casts, it may be said that they usually yield to treatment, or that they can be kept within safe bounds.

When eclampsia or pre-eclamptic symptoms occur, with or without perverted kidney action, the fetus is almost without exception viable and in as much danger of dying as is the mother, and in these cases it is not a question of inducing labor by imitating the natural process, but it is a question of rapidly removing the contents of the womb in an effort to save the lives of both mother and child.

In conclusion I wish to draw your attention to the fact that when we speak of sacrifices in connection with the interruption of pregnancy, it is not always the fetus of whom the sacrifice is expected. When death approaches a pregnant woman after a lingering illness while her womb harbors a viable child, we know that during the agony the fetus is likely to die of asphyxia before the mother has expired and under these circumstances it at times becomes our duty to advocate the induction of labor in an effort to save the life of the child.

TUBERCULOSIS AS AN INDICATION FOR THE INTERRUPTION OF PREGNANCY.

BY LOUIS M. WARFIELD, M. D., St. Louis.

There is probably no subject connected with obstetrics and medicine that admits of more discussion and difference of opinion than the question of tuberculosis in pregnant women as an indication for the artificial interruption of pregnancy. Recognized authorities hold and urge diametrically opposite views. Thus, Maragliano believes that in all cases pregnancy should be interrupted, while Ahlfeld states that no case should be interfered with.

To take issue against such authorities as are quoted, the one a recognized leader in tuberculosis, the other in obstetrics, appears hazardous, but we believe that a presentation of certain facts may help us to form a judgment in any individual case.

The importance of this subject will be seen when we consider the number of pregnant women who have tuberculosis. Bacon calculates that from "1 to 1.5 per cent. of all pregnant women have tuberculosis in such degree that it can be detected if careful examination is made." This proportion is calculated from the Census Bureau statistics. He further states that among the 60,000 women confined each year in Chicago from 600 to 900 are tuberculous. As a low estimate he thinks that yearly from 24,000 to 36,000 pregnant women in the United States have tuberculosis that can be clinically recognized.

There is one phase of tuberculosis concerning which all authors are more or less in unison. All believe that in tuberculosis of the larynx abortion should be performed in the early months.

There can be no question that laryngeal tuberculosis developing in the course of pregnancy assumes a most virulent type, as it usually leads to thickening of the vocal chords, ulceration, perichondritis and asphyxiation.

Kuttner states that the least indication of laryngeal tuberculosis is a great danger to the pregnant woman. Of 100 cases that he collected, pregnancy was interrupted during the third or fourth month in three. The subsequent histories of these women are not given. Only seven of the remaining number survived the pregnancy.

Lohnberg reports a case of a woman, a IV. para, aged 36, who had tuberculosis of the lung and larynx. Pregnancy was interrupted in the third month, but in spite of this all the symptoms rapidly increased and the patient died seven weeks after the operation.

Freund, however, mentions a case in which tuberculosis of the larynx developed in the first month of pregnancy. The diagnosis was confirmed by careful examination and the pregnancy was interrupted at the sixth week. Five and a quarter years later the patient was living and perfectly well.

Unless the diagnosis is made early and the pregnancy interrupted in the first two or three months, it does not seem justifiable to interfere. We can scarcely hope to save the mother even if the operation is performed, for the effect of the operation itself is markedly deleterious if performed after the third month.

The chances of a mother giving birth to a live child are not the best. In Kuttner's collection of 66 children, 60 per cent. died shortly after birth. Freund states that in his experience abortion is very frequent. Fellner in his series did not find so great a mortality among the children. He found that out of 289 children 24 per cent. were dead at birth, or died shortly afterwards.

In pregnancy complicated with tuberculosis of the lungs no rules of thumb can be laid down. Every case must be decided on its individual merits after the most careful consideration with a consultant. While tuberculosis of the lungs, as a rule, is apt to show an increase in severity during pregnancy and, after delivery to develop rapidly to a fatal termination, yet such is not always the case. When we know of, or have seen, women with well advanced tuberculosis give birth to healthy children and live for possibly several years and even bear other children, we must perforce hesitate to lay down any rules for guidance. Naturally, mild forms of tuberculosis are more favorable than severe forms, and previous tuberculosis is more favorable than a tuberculosis that develops just before or during pregnancy. The latter is apt to run a very rapid course (Larcher). However, tuberculosis of the lungs in itself is no contra-indication if, for any other reason, interruption of pregnancy is necessary.

Freund's experience is valuable. Out of 4,000 cases he saw 26 with tuberculosis of the lungs of a mild type, most of whom had for a year or more shown no active signs. All had normal pregnancies, normal labors and recovered normally from the puerperium.

Unfortunately, as he himself states, he was unable to follow up the further histories of these women.

He also saw 21 severe cases among his 4,000 cases—seven of these aborted. In 8 the symptoms were markedly aggravated so that interruption was thought advisable. Five died shortly after the operation. Nine of the 21 died in the course of the following year.

Von Rosthorn saw 25 cases. He believes that in stationary cases the influence of gestation seems to be little or none. This is true even if bacilli are present in the sputum, provided that there has been no fever or haemoptysis for a year. If, however, there are signs, with ever so little fever, that does not respond to hygienic-dietetic treatment the prognosis is bad.

The well known fact that children born of mothers with far advanced phthisis may be healthy and never show any signs of tuberculosis, naturally is a strong argument against any interference with the preg-

nancy. Especially is this the case when the circumstances and surroundings of the mother are such that she cannot be placed after the abortion, in the most favorable conditions.

The physician's first duty then would be to the unborn child. In advanced tuberculosis the child should receive the first consideration, in beginning tuberculosis, the mother.

Other factors to be taken in consideration are the question of congenital tuberculosis and the question of inherited tendency to the disease, what has been called anaphylaxis. This last has been very conclusively shown to be the case in the serum disease; the young of guinea pigs, whose mothers were given the serum disease, were found to be markedly susceptible to small doses of the horse serum. Cases of congenital tuberculosis have been reported and while there are many who ridicule the inherited tendency idea, recent experimental evidence substantiates this view.

Thus a pregnancy in a woman with tuberculosis offers a series of problems that seem more difficult of solution the more one considers them.

It then becomes the duty of the internist and obstetrician to work hand in hand. Particularly would this be advisable where there was a family history of tuberculosis and the woman herself was frail in build. Careful physical examination of the lungs should be as much of a routine method as the measurement of the pelvis. More so in fact. For once having measured the bony points in the pelvis, the chances are that they will not change. Not so with the lungs in any one pregnancy, or in succeeding pregnancies.

After any exhausting illness during pregnancy or after excessive vomiting of the early months most careful prophylaxis should be instituted.

Particular attention should be paid to the convalescence from colds, grippe, pneumonia and pleurisy. Should there be quotidian or tertian fever with chilly sensations, the most careful and painstaking examination of the lungs should be made. Too many times the patient is satisfied with the diagnosis of malaria.

It is only necessary to remark that no tuberculous mother should nurse her child.

Finally, at what have we arrived? Simply these principles:

1st: Tuberculosis of the larynx is a very grave complication of pregnancy and is a justifiable indication for its interruption. To be of value, it must be done in the first two months of the pregnancy.

2nd: In advanced cases of tuberculosis of the lungs in pregnant women abortion is not justifiable. The exhaustion following it differs very little from that of the normal puerperium. The child should in such a case be our first care.

3rd: In early tuberculosis of the lungs, if the process is advancing, the

woman is losing weight and if she can be put under the most favorable surroundings there might be a justifiable indication for interruption.

4th: If on the other hand, a woman with tuberculosis of some months standing with the process apparently stationary the most rational procedure would be to watch her closely. Such women may abort or may go through pregnancy, labor and the puerperium in a normal manner and show no harmful effects from them. There seems to be only one rule; if the abortion is performed it must, in all cases, be done as early in the pregnancy as possible.

THE INDICATIONS FOR THE INTERRUPTION OF PREGNANCY IN REFERENCE TO HEART DISEASES.

By W. H. Vogt, M. D. St. Louis.

The premature emptying of the uterus can be done at almost any time during pregnancy but the results as far as the fetus is concerned depend entirely upon the period when induction of labor is brought about. We therefore have to differentiate between the artificial abortion and the artificial premature birth. In the first instance, we entirely ignore the possibility of the further development of the fetus extra-uterine, whereas, in the latter case we hope for its further growth.

By artificial abortion is meant the termination of a pregnancy before the seventh month. The object of this operation is to ward off an impending, or control an existing danger to the life of the mother, but it is necessary to know that by this means alone can the mother be saved.

By artificial premature birth is meant the interruption of pregnancy at a time when the fetus is viable, or about the 32nd to the 33rd week of pregnancy. The object of this operation is to protect the mother and child from dangerous conditions which might arise during the further course of pregnancy or during labor at full term. It occasionally happens that we have in view the protection of the woman's life only, but usually in induction of premature birth we hope to save the life of both. The early writers mentioned many reasons for, and gave numerous methods of inducing labor but not until the latter part of the eighteenth century was it placed on a scientific basis when Sir William Cooper advocated its use in cases of narrow pelvis instead of the Cæsarean section, because at that time the mortality following Cæsarean section was very high. Today it is generally recognized that we are justified in inducing labor under certain conditions, but the indications for the same are still in many cases not definitely settled. The indications may be divided into two classes, viz.:

1. The operation is absolutely indicated in all cases of pregnancy in which an absolute danger to life exists for the pregnant woman, and

which we can hope to relieve only by the interruption of the pregnancy.

2. The operation may be justified as a relative procedure, not as above stated where danger already exists, but when it is feared that by the further continuance of the pregnancy, or during labor, or the childbed, more dangerous conditions may arise. Relative or prophylactic indications, we might term them, should never be considered in diseased conditions of the mother. The only time when they might be justified would be in an absolutely too narrow pelvis. In diseased conditions we can often, through proper dietetic and medicinal treatment, bring about a complete cure or at least an alleviation of the severe symptoms. We are never positively able to decide whether on account of a co-existing pregnancy the condition of the patient is necessarily exaggerated, and on the other hand we are never able to positively state that the termination of the pregnancy will as a rule cure the disease or even bring about relief. Too often does the medical profession allow itself to be influenced by the subjective symptoms of the patient who is often, intentionally or unintentionally, deceiving the physician.

I, therefore, believe that the consideration of relative indications for diseased conditions of the mother should be entirely left out and the therapeutic interruption of pregnancy should be performed only when real danger to the life of the mother exists.

Several pathological conditions of the mother may justify this procedure but it behooves me to speak only of one, namely: Heart diseases. When speaking of heart diseases in pregnancy we often hear of the great dangers, not only during pregnancy but what might occur during labor, or the puerperium. We are all aware of the fact that under ordinary conditions cardiac diseases in any of the forms are very serious troubles and when they occur in pregnancy, or when a woman with a chronic heart lesion becomes pregnant, the seriousness of the condition is even greater. Although we all recognize this fact, yet I believe that too often the condition is exaggerated.

The prognosis in diseases of the heart is as a rule much better for both mother and child than is usually given. Fritsch, Macdonald, and many French authors have studied this subject and most all came to the conclusion that diseases of the heart may produce serious complications, but as to the frequency of the complications, opinions vary. Vinay claims that 13 per cent of all pregnant women with cardiac disease suffer disturbances during pregnancy, labor, or the puerperium, while Porak claims as many as 65 per cent. suffer. There is no question that unless we examine all of our pregnant cases carefully, many will escape us with heart lesions undetected and go through pregnancy and labor without any disturbances; this also is the reason why the varied percentages are given above, for the one author looks for heart disease in every case, while the other uses in his statistics only cases where he has been in-

formed of the existing lesion and then examines. Fellner believes that only one-seventh of the heart diseases during pregnancy are ever detected.

Among the various heart lesions it is claimed that pure mitral stenosis is the most deadly. Lusk says that these patients never live beyond the sixth month and even advises the induction of abortion as soon as the diagnosis is made. This, however, has not been Jardine's experience. He reports several cases of mitral stenosis in which disturbances of compensation were present but under careful treatment these disturbances disappeared and the patients went to full term. Labor set in and delivery was completed after the first stage with forceps. The patients made uneventful recoveries. Aortic incompetence comes next to mitral stenosis in seriousness, and mitral insufficiency unless very marked is claimed not to be so serious.

In considering the heart diseases both for mother and fetus, Jardine's cases furnish us very good data. He reports 13 cases with almost all the various valvular lesions and in which all sorts of complications existed, such as bronchitis, edema, albuminuria, etc. All with the exception of two cases went to full term, one aborted spontaneously at the third month and the other abortion was induced on account of the patient having a serious heart lesion with a bad previous history. Of all these cases only one patient died and this one came under his care after labor had begun.

It is claimed that spontaneous abortion will take place very often where incompensation is present, probably due to death of the fetus from insufficient oxidation. This from the above reported cases does not even seem to be of such frequent occurrence. I believe, however, that if the incompensation is severe and the patient is not under strict medical care, abortion will occur quite frequently. In a recent article by Whitridge Williams in which he reports the indications for induction of premature labor and abortion we find only two cases mentioned of broken compensation as an indication for producing this operation out of 5,000 labors. Certainly a very small number.

From the experiences of a large number of authorities the fact seems to be that if a woman with a heart lesion becomes pregnant, no matter what the lesion be, and the same is uncompensated, her chances for going through pregnancy, labor or the puerperium without trouble are small, whereas, on the other hand, if the lesion is compensated and her general health is good she probably will have no trouble, provided no incompensation, nephritis or endocarditis should appear. Since we know that complications during pregnancy may arise as a result of heart lesion it becomes our plain duty to examine every one of our pregnant patients carefully for such conditions and should we find a lesion of some sort, attempt to keep the patient under our control and give her instructions as to what to do and what not to do. It is not necessary to inform the

patient of her condition, in fact I think it wrong to do so, for the average layman when he hears of heart disease figures that he is surely doomed to an early death. This scare we must try to keep from our patient for fear of her becoming melancholic over her condition which is not infrequent in this class of cases and has a bad effect upon them. By so observing our cases we will almost always see heart cases go to full term, and pass through labor and the puerperium without any difficulty. If disturbances of compensation should arise, then by rest and proper treatment we will probably succeed in having the fetus carried to full term without endangering the life of the mother. Patients should be warned about their work, in regard to long walks, climbing of stairs, or any great amount of exercise, but a small amount of exercise without fatigue should be encouraged. Alcoholic drinks should not be permitted. If symptoms should arise which indicate a disturbance of compensation such as dyspnoea, palpitation, cough, etc., then it is well to put the patient to bed, apply an ice bag over the region of the heart and place the patient on a mild diet, probably the best is a plain liquid diet. In severe cases cardiac tonics such as digitalis or strophanthus may be given. If by these means we are unable to control the condition the question of interrupting the pregnancy may arise.

Now it is a known fact that the patients seldom have any trouble in the early part of pregnancy and that disturbances of compensation occur usually only toward the end of pregnancy; it will therefore rarely become necessary to perform an abortion for this cause. If, however, the indications for the interruption of the pregnancy should arise we must bear in mind that the dangerous symptoms are usually of least gravity during pregnancy, that they become greater during labor and are most severe during the puerperium. It is therefore necessary to select our cases carefully for we may, by inducing labor, only hasten the patient's end. When a patient is suffering with severe disturbances of compensation we must not even then be too hasty in deciding to induce labor, for the extra strain put upon the heart during the labor and the sudden drop of the blood pressure which takes place immediately after labor may kill the patient and we have then simply helped to bring about what we tried to avoid. On the other hand, we must not hesitate too long for as a general thing the symptoms become more dangerous the further the pregnancy is advanced, the diminished blood pressure and consequently the collapse are the more to be feared. In other words, if we expect to have results in the performance of this operation we must not wait until the patient is practically beyond hope. If the symptoms are severe in the early part of pregnancy, or if other conditions exist besides the heart lesion which alone, or combined with the heart lesion, make it dangerous for the woman to carry her fetus, then it will not be so hard for us to decide to perform the operation.

After all is said, it will be seen that the indications for the interruption of pregnancy resolve themselves into the following:

When during the course of pregnancy disturbances of compensation arise which are not amenable to treatment, in fact which get worse under careful treatment and danger to the patient exists, then, and only then, are we justified in inducing labor. The mere presence of a heart lesion never furnishes the indication for this procedure. As said before, it will rarely become necessary to perform an abortion owing to the fact that disturbances due to heart lesions usually first appear during the latter part of pregnancy, but it occasionally happens that we see a woman who has had severe complications due to a heart lesion in previous pregnancies and who has against warning again conceived, then with due study of the case and consultation with another colleague may we undertake to do an abortion for the purpose of preventing a repetition of her previous experience. Even in such cases we must not jump to conclusions, for because a woman has had trouble in one pregnancy it does not necessarily follow that the same trouble will again take place. Probably no symptoms will arise during this renewed pregnancy and it would therefore probably not be wrong to watch her and allow her to go to full term if possible, providing her general health is good. This course would probably be all the more indicated in which a patient has not had a living child and was anxious for the same. Should symptoms arise while under observation which ordinarily would not influence us to induce labor, knowing the previous history we could do so now before serious symptoms appear. This would probably be attended with a fair amount of success. I say only a fair amount of success for we must be very guarded what we promise in this class of cases. Our success will depend greatly upon the manner in which the labor is handled.

In conclusion it may not be amiss to state that frequently women with heart lesions are advised not to marry. This, I believe, is going a little too far, and I agree with Wright who says: "If a woman has for years been able to attend her domestic and social duties without any serious ill health or serious trouble due to her cardiac condition, she should not be prevented from marrying, even though it is freely admitted that child bearing may aggravate the dangers connected with heart disease." The dangers of pregnancy and labor are becoming less feared owing to a better understanding of the cases.

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HYPEREMESIS AS AN INDICATION FOR THE INTERRUPTION OF PREGNANCY.

BY BERNARD W. MOORE, M. D., St. Louis.

Hyperemesis gravidarum is a condition which has been recognized since the earliest days of medicine. Reliable statistics as to its frequency are lacking. The figures obtainable in the literature show wide discrepancies, so that the conclusion is inevitable, that the condition is more frequent in some countries than in others. As shown by Horwitz, it is more frequent in France, England and America than in Germany or Russia. The incidence varies also with the social condition, being more frequent among the well-to-do than among the poor. To this fact are due the low figures from some of the large clinics in Europe and America. Piek gives the incidence of severe vomiting as once in 1,000 cases. At the Johns Hopkins Hospital, Williams saw only two cases in 4,500, but finds the disease very much more frequent in his private work. This variability of occurrence is attended by an equal variability in mortality, which has resulted in many discrepant views as to the management of the condition, especially as regards the interruption of pregnancy. Some men of large experience are opposed to therapeutic abortion in hyperemesis, upon the ground that it is not a fatal malady when properly managed. Thus Frank, from a large experience in Schanta's clinic, records that he has never seen a case in which abortion was indicated. On the other hand, in France, Gueniot collected 118 cases, in which 72 terminated fatally, and Merle gives a mortality of about 50 per cent. in cases treated medically. In this country recently fatal cases have been recorded by Williams, Stone, Ewing, Strauss and others, so that it may be regarded as unquestionable that the disease is fatal in a certain number of cases. In all the statistics available, the mortality from hyperemesis is less in those cases in which abortion has occurred spontaneously or has been induced.

For the purposes of the present discussion, it is assumed that certain cases of hyperemesis are inevitably fatal, in spite of the best possible management, if pregnancy is not spontaneously or artificially interrupted, and that therapeutic abortion is absolutely indicated whenever the continuation of pregnancy seems certain to end in the death of the pregnant

woman. As the indications for the interruption of pregnancy are so closely related to the etiology of the condition, the main theories as to the cause of hyperemesis will be briefly considered, following the classification adopted by Williams, who recognizes three classes: reflex vomiting, neurotic vomiting, and toxemic vomiting.

Reflex vomiting is said to be due to various abnormalities of the uterus or its adnexa, existing prior to, or arising in pregnancy, or to abnormalities of the ovum. The reflex origin of hyperemesis was the earliest to obtain general credence, and for a long time dominated the literature upon this subject. Almost every abnormality to which the pregnant uterus is subject has been invoked to explain reflex vomiting, the most important being displacements. Among other causes may be mentioned ovarian tumors, Hydramnios, hydatidiform mole and twin pregnancy. The theory, however, does not seem to rest upon any sound, demonstrable basis. The various abnormalities which are supposed to cause reflex vomiting frequently exist in patients who do not vomit at all. In autopsies upon patients dying of hyperemesis, in which abnormalities of the generative tract were found, the condition of the other viscera seems to have been overlooked or disregarded, so that it cannot be positively asserted that other causes of vomiting did not exist. The chief ground upon which this theory rests is that relief from vomiting follows relief of the abnormal condition: in other words, the theory is measured by a therapeutic test. When it is recalled that many cases of vomiting cease after the use of the most irrational remedies, it will be seen how uncertain the theory is.

It is not denied that striking results sometimes follow the correction of local abnormalities of the generative tract. In all cases of hyperemesis, the local condition should be carefully looked into, and abnormalities corrected. It does not appear, however, that vomiting of such a nature as to endanger life is ever due to local disease. Therefore, the induction of abortion is never to be considered in such cases.

In 1890, in an important paper read before the Berlin Obstetrical Society, Kaltenbach expressed the view that those cases of vomiting in pregnancy in which diseases of the digestive tract, kidney or sexual organs can be shown to exist, should not be included under the head of hyperemesis gravidarum, but only those cases due to pregnancy itself. Considering hyperemesis in this limited sense, he reaches the conclusion that it is to be considered a true functional neurosis, in which reflex irritability is increased and reflex control decreased, a condition allied to hysteria. In support of this view, he cites the inconstant and unimportant findings at autopsy, and the remarkable results frequently obtained by unusual and bizarre remedies. He concludes that hyperemesis should be treated as a neurosis, by isolation of the patient under suitable conditions, and that the induction of abortion is never indicated. Other writers before Kalten-

bach had directed attention to the neurotic origin of hyperemesis, but to him is undoubtedly due the credit of first directing general attention to the condition. Following Kaltenbach's address, the neurotic origin of hyperemesis received wide acceptance.

Unquestionably a great many cases of hyperemesis are of neurotic origin, but it would be an extreme view to hold that all cases are such, even within the limitations adopted by Kaltenbach. With proper management, this type of vomiting should never result fatally. By isolation from her family, in the charge of a competent nurse, suggestion, proper feeding by mouth, or by rectum if necessary, such a patient usually promptly recovers. One patient with this type of vomiting, who had to be fed for 18 days by the rectum, finally promptly recovered upon the sudden death of her mother, who had been her constant companion.

It should be borne in mind that, in cases where pregnancy is unwelcomed, this type of vomiting frequently exists. Fritsch reports a case in which a patient lost 37 pounds in four weeks from constant vomiting. After the induction of abortion, which seemed necessary to save her life, she confessed that she had vomited at will, in order that the pregnancy might be ended.

The toxemic nature of certain cases of hyperemesis has been recognized for a number of years, but it is only since 1892, when Lindemann reported a case of hyperemesis complicated by multiple neuritis, that a definite pathological basis for this belief has existed. At autopsy Lindemann found evidences of neuritis, fatty degeneration and cloudy swelling of the liver and kidneys, and similar lesions in the liver and kidneys of the fetus. In 1891, Champetier de Ribes and Bouffe de Saint Blaise reported definite lesions of the liver in a woman dying of convulsions after vomiting throughout pregnancy. Later other cases were reported, so that Williams has recently been able to collect twelve fatal cases of hyperemesis, including one of his own, in which lesions of the liver were found resembling those of acute yellow atrophy. Still more recently two cases have been reported by Strauss. The uniformity of these findings is in marked contrast to the negative or indefinite findings in other cases, and justifies the belief that there is a close relationship between hyperemesis and acute yellow atrophy. Microscopically the liver shows degenerative changes, beginning about the central vein of the lobule, and advancing toward the periphery. Degenerative changes are also found in the kidneys. The origin of the toxic materials which produce these lesions has been variously sought. Dirmoser believes that they arise from the gastro-intestinal tract, and Veit has applied his syncytio-toxin theory. Stone considers the liver as the source of the poisons, and he, Ewing, Edgar and others believe that hyperemesis and eclampsia are similar conditions. Williams has pointed out, however, that the hepatic lesions of the two conditions are entirely different.

The symptoms of toxemic vomiting present nothing characteristic at first. The differentiation from neurotic vomiting by ordinary clinical methods is impossible. The loss of weight and prostration is no greater in the one than in the other. The character of the vomited matter is the same. In toxemic vomiting, the pulse may be of good character, and the temperature normal. In a case which I saw, the pulse was 86 when it was decided to end pregnancy, although the skin and conjunctivæ were icteric, and the liver dullness apparently much decreased. The ordinary chemical examination of the urine may be entirely negative. In the terminal stage, however, the symptoms are quite characteristic. Blood appears in the vomitus, which takes on a coffee-grounds appearance. The skin may become icteric. Epigastric pain is sometimes intense. Death comes with coma or convulsions, or consciousness may be retained to the end. The urine shows the presence of albumen, blood and casts.

In a condition which has so great a resemblance to acute yellow atrophy clinically and pathologically, it would be reasonable to expect a similarity in the condition of the urine. In acute yellow atrophy the urea is constantly decreased and the ammonia constantly increased. To Williams of Baltimore belongs the great credit for first calling attention to similar changes in the urine of toxemic hyperemesis, and thereby furnishing a method of precision in the early diagnosis of this disease. In a series of carefully studied cases he has shown that in toxemic vomiting the urine shows constantly a practically normal total nitrogen output, a marked diminution in the urea, and an increase in the ammonia from the normal 3 to 5 per cent. to 20, 30 or 40 per cent., or over. These changes occur at a time when clinical diagnosis would be impossible, and furnish an early indication for the induction of abortion, which greatly increases the chances of the recovery of the patient. In neurotic vomiting, on the other hand, the nitrogen partitions of the urine show no changes from the normal. Such examinations of the urine have to be made by a trained chemist, and to this disadvantage may be added the length of time required. Williams' work has not yet been confirmed, and has met with various theoretical objections from Dirmoser, Wolf, McDonald and Strauss. Stone has recently published four cases of toxic vomiting, in which careful analyses of the urine were made, and in which a high ammonia co-efficient was not constantly found, but he concludes from the large quantity of amido-acids present, that a study of the nitrogen partitions of the urine furnishes a valuable means of prognosis in hyperemesis.

In conclusion it may be said that with our present knowledge we are justified in recognizing but one form of hyperemesis in which therapeutic abortion is indicated,—toxemic hyperemesis,—and that a careful chemical examination of the urine furnishes an early and certain means of diagnosing the condition.

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THE ETHICS AND LAWS REGARDING THE INTERRUPTION
OF PREGNANCY.

BY FRED. J. TAUSSIG, M. D., St. Louis.

Many, particularly among the laity, claim that by giving our sanction to the interruption of pregnancy under certain special circumstances, we are offering a loophole of escape to all those who desire to interrupt pregnancy for their own personal gain. On the one hand, they say, we condemn it as a criminal procedure, and on the other recommend it as a means of saving the mother's life. Are we consistent? As much so, surely, as when we condemn the killing of a man in one case as murder, and in another case praise it as the highest type of patriotism. If it is justifiable for a man to kill another for the defense of his country and his home, surely it cannot be wrong for the doctor to take a life for the defense of his patient.

But just as the law has sharply defined the line between murder and self-defense or defense of one's home, so, too, we must in our laws and code of ethics set down certain rules for the protection of society so that this privilege accorded the physician is not abused.

I recall at the Portland meeting of the American Medical Association, when the subject of the interruption of pregnancy in tuberculosis came up for discussion, that several members declaimed against the abuse this doctrine might give rise to. Occasionally I have heard obstetricians say that it was all right for *us* to know about these special indications for interrupting pregnancy, but that we should not be spreading the information among general practitioners for fear that it would lead to the interruption of pregnancy on the slightest provocation.

I don't believe the science of medicine is anything to keep quiet about. The more the practitioners know the facts, the greater the ultimate benefit for mankind. Practitioners have heard of the advisability of interrupting pregnancy in tuberculosis, heart disease, etc., and it is our duty to instruct them not merely when to resort to this procedure, but also, and above all, when *not* to resort to it. It should be emphasized that the life of the child must not be taken merely for reasons of inconvenience or

even actual suffering on the part of the patient but only when the mother's life is actually endangered.

For the protection of the good name of the medical profession, I should advise that the following rules be conformed with:

(1) In the first place, we should define as accurately as possible the special conditions under which the interruption of pregnancy is permissible and require that in every instance these special conditions really exist.

(2) Pregnancy should be interrupted only after the physician in charge has consulted with one or more physicians and obtained their approval.

(3) We should demand that the consultant be not merely any other physician, but some person of note in the community. The danger lies of course in the fact that the unscrupulous doctor will call in some equally unscrupulous medical friend and, after consultation, proceed to do that legally which he would otherwise hesitate to perform. Of course, the municipality is the loser by this taking of human life, and it seems to me fair and expedient that it protect its rights by the appointment of a board of consultants without whose consent it should be considered criminal to induce an abortion. The success of the advisory board of three physicians on questions of insanity, recently appointed in this city, leads me to believe that a board of three persons similarly appointed from a list of those specially qualified to serve in this capacity would be a means of protecting the community in a matter vital to its interests.

I offer this merely as a suggestion for the consideration of the committee appointed to revise the laws relating to criminal abortion. The present wording of the state statutes is certainly extremely vague and unsatisfactory and gives the state absolutely no protection.

EDITORIAL.

THE NEW HARVARD MEDICAL SCHOOL.

A step in the evolution of medical education is illustrated by the group of buildings recently dedicated to the use of the Harvard Medical School. Their significance is too all-important, however, to be limited to its direct bearing on the fortunate medical school which possesses them. These buildings are not merely an expression of architectural beauty and progress; they stand for more: they stand as a symbol of a recognition on the part of our civilization of the high position among arts and sciences occupied by medicine.

In earlier times, painting, sculpture and music, even some of the natural sciences, received encouragement and patronage, but medicine, which, according to the best thought of today, is the most truly altruistic of arts, and the most far-reaching of sciences, was made an out-cast and became a skulking pariah. Medical teaching in its beginning was not allowed to be ennobled by decent surroundings. It was done in the dark, darkly, and resulted in secrecy. It was checked by church and state, and cramped by the obstinacy of ignorance and traditional conservatism. It took many centuries of sacrifice to bring the medical school to the point of being even a cleanly place. The outside world is not entirely to blame for all this, for Medicine in itself, in a way, is culpable, having followed many false prophets; there have been not a few of Paracelsus' stamp, both in old and in recent times, who have made burnt offerings for their own gain of the art of medicine.

The science of medicine, on the other hand, is a lusty child of little more than a century's life, and with the growth of this infant, her older sister, the Art, has found it necessary to reform and rehabilitate herself, and has done so with some grace. That these two now stand hand in hand, and enter a new century, clean and beautifully clad, is the profoundest thought connected with this dedication.

In these buildings we have an illustration of the possibilities of the possession of great wealth in a republic where paternalism is lacking. Here was given to several donors the opportunity of building a new and suitable home for medical instruction and research. To have this opportunity and privilege, to take advantage of it, and raise such a monument, is making the return for the benefits reaped by commerce from medical progress in the nineteenth century, and, in fact, in all the centuries; for true medical knowledge has always been of untold advantage to the public welfare and consequently to individual interests. The thought that a man of wealth, or several wealthy individuals, may be able to

do so much by the expenditure of money, that they may have the chance to voice the impulse felt by all thinking people, is granting to them the reward they deserve.

These beautiful buildings, of deep-cut gray marble, hold but a promise; they signify a positive step toward the betterment of a noble art and science, and they presage a rich return to the very interest that made possible their building. Those who have burned the lamp of sacrifice to build these buildings shall feel, and their children shall feel, that part of the debt to medicine has been paid, and that in addition something has been loaned to the future that shall earn a widespread benefit for humanity.

The architecture of these buildings is significant, as it not only signifies the new plane on which medical education is here placed, but it also typifies the art and science of medicine. The buildings are most perfectly adapted to their purpose, from a utilitarian standpoint. The laboratories are light, and the lecture-rooms are so arranged that each listener shall both hear and see. But, with all this, the buildings are beautiful, and are grouped in such a style that even the casual passerby receives a distinct impression, and carries away a belief in the influence and beauty of the age of Pericles and Phidias. The influence of these buildings on the mind of the student, surrounded by their silent though eloquent atmosphere, can be naught but a constant mental and spiritual uplift.

The words of President Eliot, spoken at the dedication, are so inspiring, and present the objects and ends of modern medicine in such decisive form, that we may repeat them here:

"I devote these buildings and their successors in coming time to the teaching of the medical and surgical arts which combat disease and death, alleviate injuries, and defend and assure private and public health, and to the pursuit of the biological and medical sciences on which depends all progress in the medical and surgical arts and in preventive medicine. I solemnly dedicate them to the service of individual man and of human society, and invoke upon them the favor of men and the blessing of God."

THE DUST PROBLEM.

Many, indeed, are the problems which confront us today, but though an interest in them is more commendable than an avoidance, their appeal to a limited circle and the difficulty of solution with resulting benefits of doubtful value to humanity, make them of less importance than a subject informed with a world-wide interest, whose application and possible solution would mean amelioration of suffering among all classes.

That dust is not to be lightly thought of and has a deeper significance than the tribulations it brings to the over-zealous housekeeper, is a fact

fully apprehended in the scientific world. Dr. George Homan, in an excellent paper read before the British Medical Association held at Toronto, August the 21st, calls our attention to many defects in our unscientific methods of house and office cleaning. As the writer forcibly states, "there is agreement among authorities that the sputum expectorated by consumptives, and, becoming dried and powdered, constitutes the principal means by which the infection is extended, the precise manner in which the recipient acquires it—whether by inhalation, ingestion, or inoculation—being of secondary importance, but that pathogenic lodgment must necessarily take place in one or more of these several ways. The seriousness of the situation is increased by the fact ascertained by competent observers that the vitality of the infecting germ retained within doors may endure unimpaired for several months."

This being the case, the greatest care should be exercised in preventing the dissemination of particles which might be the carriers of the germs of infection. It is no overdrawn picture the writer gives as to the crude ideas which obtain today in connection with the so-called best methods to rid our buildings of dust. The Romans, with their veneration of their household gods, their Lares and Penates, gave evidence of the artistic sense, but it has remained for the enlightened people of the twentieth century to add a few utilitarian ideas to *their* gods in the shape of the broom and duster. To raise a cloud of dust with a broom, thereby driving many particles into other rooms which may be tight-closed, but are certainly carpeted and have such modern dust collectors as heavy portieres and curtains, is a footless proceeding with possibilities of a criminal nature. But such is the ignorance plus arrogance of the many who rule us that the small voice raised in protest is construed into dissatisfaction with that which must be right because the majority wish it.

Dr. Homan's arraignment of the manner of cleaning clubs and office buildings, and the deleterious effects therefrom on employes, is a timely outcry against a dark page in what we easy-going critics are pleased to call the Book of Progress. One quotation will suffice to show the enormity of the offense: "The limitations of time and circumstances here," says the writer, "do not permit any extended notice of the morbid development observed among employes in atmospheres of daily domestic dust, but of those places in which medical scrutiny has been exercised longest and most closely, the confident statement can be made that while, of course, many contributory influences are involved, yet the pleurisies, penumonias, bronchial catarrhs, and cases of tonsillitis and influenza occurring among patrons and helps find a sufficient explanation in the local conditions, and undoubtedly these ailments prepare the way for the tuberculous infection that easily and commonly follows."

To modernize the methods of cleaning so that the dissemination of dust could not be considered a contributory influence in the causation

of the above mentioned diseases, Dr. Homan suggests the vacuum or pneumatic method, but while this is practicable in clubs, hotels and theaters, it is not in private houses. Certainly, suggestions are not out of place when the health of the community is at stake, nevertheless we deeply regret that all that Dr. Homan has said, and others might say, will have but small effect until the carpets, the portieres, the many ornaments, now integral parts of our homes, are abandoned.

The habits of a people are hard to change, hence suggestions are rather worthless where applicability fails of desired results. Only when a people realizes how cheap, tawdry and unnecessary are the useless appendages of the modern home; when education spells culture and trains the eye for the useful and the ennobling, will a better state be inaugurated. Let us hope, when this happens, the implements used at present to disseminate dust will occupy a quite exalted place in a museum for antiquities.

THE SILENT FACTORS IN CRIME.

The question of determining the responsibility of a crime is not solved when the accused is freed or punished. There lies behind many a criminal act a chain of circumstances, which seem to work with a relentless certainty to the final tragedy. Too often there can be found in this chain of causes, factors which, if taken in time, might prevent the crime. In the history of an act of violence this preventable factor is seldom mentioned, and the experience that might be gained from its study is lost. The slate is wiped clean, the machinery of the law is again set in order, to be ready for the next criminal and the lesson goes unheeded.

Too often are ignorance, rapacity, carelessness and gross fraud allowed to play their part to the detriment of society and to the undoing of one of its innocent members. The unrecognized factor, whether a circumstance or an individual, is permitted to go unnoticed and the silent accomplice to the act is free to form again, if fate so wills, a part of the relentless chain.

A recent crime in this city might well form the text of a sermon which would have for its object the demonstration of the fact that the law in its dealings with criminals puts limits on its activity from which society suffers.

The law, were it in an accusing mood, might well raise its finger in scorn at the medical profession for its neglect of duty in this very connection. How rare is that kind of courage to be found which for the protection of society informs the proper authorities of the danger of permitting a medical error to go to its logical conclusion.

Law and medicine are the two most powerful elements in the prevention of crime and yet they seldom act together to this end with any conscious spirit. Somewhere there is a lack of co-operation and somehow

this empty place escapes attention. The fault that led to the crime to be related below lies either in the medical or the legal end of our institutions. Will someone discover its place, suggest a remedy, and have the courage to see it through?

The crime: A preventable murder—a fratricide. The criminal: A youth with paranoical delusions upon a basis of dementia præcox. The preventable factor: A physician, whether acting in good faith or not, hidden and protected from the law. The legal result: A recommitment of the murderer to an asylum. The price that society pays: The sacrifice of a worthy life, the stain of murder upon an innocent family. The rest can be left to the imagination.

The story is commonplace enough. A physician claims to be able to cure certain forms of insanity by operation on the head. A small trephine opening in an indifferent part of the skull with the removal of the button of bone is sufficient, according to him, to so change the mental activity of an individual that delusions, no matter how fixed, degeneracy, no matter how deep, will disappear. An x-ray examination decides what portion of the skull is to be operated upon.

A young man, an inmate of an asylum, committed there according to the law and supposed to be kept there as a protection to society, is allowed to leave on parole. All this is strictly within the limits of the law. This young man is suffering from delusions of persecution. He has katatonic symptoms and is probably a victim of dementia præcox with homicidal tendencies. The dementia is already pronounced, prohibiting of course, any hope of cure. An x-ray examination is made, a lesion of course is found, and the operation then performed. A button of bone about the size of a quarter is removed from an absolutely silent area of the skull and the patient, after a long period of convalescence, is sent home. A few months later he shoots his brother under the delusion that this brother is conspiring to deprive him of health and strength. The brother dies a few days afterwards. This boy is charged with murder in the first degree and is declared irresponsible and is about to be sent to the asylum.

The further details of the story are not necessary; the questions of fee and the personality of the physician are irrelevant. The good intent of the physician even has no place in the question now at issue.

The vital thing to inquire about is what protection has society in a case of this kind? What explanation has a civilized state to offer for the fact that one of her citizens should be shot down in broad daylight by an individual known to be insane and placed in a legal way at one time in an asylum? To admit an individual known to be dangerous to an asylum by due process of law, and to free him again without it, his disease remaining the same, is a curious bit of legal inconsistency.

In this case the preventable factors, the silent forces, acting as accomplices, are many. They all point to defects in the law of so vital and serious a nature that immediate changes are indicated. They point to the weakness of a system which invests in the hands of one man the responsibility of dismissal of insane people known to have been dangerous. They point to the need of a consulting body on psychiatry to aid the courts in the determination of the probable future in respect to the law, of patients committed by due legal process to the insane asylum. Above all they point, and in no uncertain way, to the necessity of discovering the preventable factors in every crime and the means of protecting society from the activity of these factors. The story of this murder presents an argument that is unanswerable in support of these contentions.

COMMENT.

A PLEA FOR BETTER STUDENTS.

The indifference of parents to the proper education of their children, the low moral status resulting therefrom, the crippled citizenship following parental perverseness when Manhood is in the Making, are facts graphically set forth by R. F. Chalmers in an admirable article copied by the *University Digest* (Chicago, Sept.) from the *Independent Review* (London, England).

The demoralization of parents is apt to be underestimated in the hurly-burly of modern life, just as the independence necessary to youth is generally exaggerated by an uncritical public imbued with ideals out of keeping with reform and progress. By demoralization of parents, we glean from the article, is meant the indifference of parents to those educational systems in which "children educate each other, while a number of distinguished scholars, who are paid to educate them, stand by and look on and call it a system."

In England, these remarks apply to public school education, but though their pertinency is not applicable to the same schools in this country, it is applicable to our numerous boarding schools, colleges and smaller universities.

Parents, directly the boy leaves home, give but little thought to his moral welfare, consoling themselves, if they ever really think of it, by an implicit confidence in the "system," the details of which appeal differently to the father and mother; the former staking his faith on the erroneous idea that athleticism—*Mens sana in corpore sano*—will generate a moral uplift; the latter, on the *esprit de corps* which to her simple mind spells moral education.

Athleticism, though it may mean much for the muscles, has but a slight bearing on the mind, especially that part of one's mentality that is needed to curb the passions and obliterate moral obliquity when in later life business and social duties become imperative. Boys who influence each other after study hours without the supervision of masters, have many opportunities to inculcate wrong ideas into their fellows. A precocious boy of 12 or 14 may do untold mischief, not by overt methods that must be seen even by the most obtuse and apathetic instructors, but by covert means so masked that among the many avocations of the modern teacher small notice is taken of their blighting effects. But this will continue so long as children are allowed to educate each other.

Citizenship is an all-important factor in progress, and though to the simple-minded parents the results of the present "system" of education

may be perfect, to the critic who believes in reform, the absence of moral instruction is responsible for the imperfect specimens of manhood sent into the world to-day to battle with its difficulties. Reform can only be effected by co-operation, not on the part of the adolescents, but on the part of the parents. Although at first the difficulties may seem insuperable, unremitting endeavor, backed by a concentration of purpose, will do much to relegate to the second class athleticism and the classical studies, and place in the front rank the moral welfare of the pupil. When this is accomplished, the material that enters our professional schools, our medical and legal, will be of the best standard; new ideas will not fail of receptivity in minds that are clean and normal; enthusiasm will not be lessened by previous immature ideas indelibly stamped on growing intellects; and sound teachings will not cause a mere ripple on brains made shallow by the frivolities of the present "systems" of our preparatory schools, but will strike deep, so that the student of medicine, especially, when he takes up his onerous duties, will not shirk their responsibility.

PSYCHOTHERAPY AND RE-EDUCATION.

Hypnotism, which was so thoroughly exploited in 1887 and then fell into disrepute on account of blind worship by indiscriminate partisans, is coming into some notice again in connection with psychotherapy. Psychotherapy, as practiced today, is a combination of education, explanation and persuasion, but fundamentally suggestion plays no minor part. Suggestion was the cardinal point in hypnotism as taught by the Nancy school, and it is no exaggeration to state that without our knowledge of suggestion-therapy, psychotherapy would not now be a study. The evolution of this new treatment is one of interest and import. In the dim past, when Hippocrates lived, suggestion was employed in the cure of functional disease. Later religious teachers developed methods of conscious psychotherapy, by persuasion, to aid those who consulted them, in banishing false ideas, scruples, or fears. Nor should we forget miracle cures; the royal touch; the endeavors of astrologers and alchemists. Paracelsus brought magnetism into vogue, then the world heard of mesmerism, which was followed after the lapse of years by hypnotism.

Dr. Lewellys F. Barker, who visited the Pinel ward of the Salpêtrière in 1904, was so impressed with the method as followed by Prof. Dejerine in the treatment of the psychoneuroses, especially hysteria and neurasthenia, that on his return home he at once instituted it at the Johns Hopkins Hospital.

According to a paper published in the *American Journal of the Medical Sciences* for October, the treatment is simple in the best sense of the word. Each bed is surrounded by drawn curtains so that the occupant does not see or communicate with her neighbors in the ward. When

the physician makes his rounds, the curtains are opened, the patient is told of her nervous condition, the cause of it is explained, if any improvement has taken place it is mentioned, and finally she is informed that she will get well. Excess of food is not overlooked in neurasthenic women, otherwise the treatment is the same as in hysteria. Drugs are tabooed. Paralyzes, contractures, anorexias, nervous crises of months' or years' duration disappear in a few days, weeks or months.

Here we have a large field for excellent work. Re-education, when it is taught by an earnest and untiring student of functional nervous diseases, cannot but be of benefit. Observations made in a rather desultory way have convinced us often that a functional disorder is robbed of the terrors with which the mind is beset by confidence of the patient in the doctor, and vice-versa, and by free and unhampered explanations. Now that suggestion-therapy is frowned upon by scientific minds, let us hope that the enthusiasm attending the efforts of men like Dejerine, Dubois and Camus, sincere advocates of psychotherapy, will not be evanescent, but have a permanency so that a secure position will be granted this new treatment in the bead-roll of medical progress.

A LESSON FROM GERMANY.

A report comes from Germany, via the *British Medical Journal*, that quite recently a means has been affected to relieve general practitioners of the onus of work on Sunday. With an ingenuity rather French than German, the municipalities of Freising and Frankfort have accomplished the solution of this stupendous problem. A small number of physicians are deputed to attend patients every Sunday afternoon, the volunteers or appointees changing from week to week. In this way, nearly every practitioner is called upon during the year to do his fellow practitioner's work.

This is certainly in line with the altruistic spirit of the age. The altruism is so complete and so far removed from gross materialism that even the article in the practical *British Medical Journal* pays no attention to the division and distribution of fees. We are in the dark whether the men forming the municipalities give the Supermen among the doctors the larger, or the Undermen, meaning the real workers, the smaller share. Or do the half dozen doctors who are appointed get the money, to do with it as they please? Considering that for some occult reason there are just as many patients Sunday afternoon as any other, we make bold to state that the appointees are justly entitled to the full stipend.

We have often remarked that in Utopian articles it is always well to forget to mention these minor details, for it is a fact that the beauty of the picture is forever destroyed by smirches which reek of gain. Still, being Americans, we deem the process most impracticable for many

reasons, the principal one being that as yet American physicians have not divorced remuneration from science. In fact, one of the aims of science with us is to unite with earnestness and endeavor a material gain, so that our serenity of mind shall not be lessened by the petty annoyances incident to the art of living well.

Perhaps, in the land of Schopenhauer and Nietzsche, conditions when philosophically considered, may be different to ours; nevertheless with our limited knowledge of human nature we stand unconvinced that in pragmatic Germany, where utilitarianism occupies a higher plane than elsewhere, no complications result from the practical working of this visionary plan to lighten the labors of the general practitioner.

EUGENICS—THE FUTURE OF MAN.

When Charles Darwin, the greatest biologist of any age, gave the best evidence of his genius to the world, the nineteenth century stood aghast, and loud were the denunciations from the press and pulpit. That we of the twentieth century are not more tolerant of originality and daring is shown in the antagonistic spirit with which the subject of eugenics—the future of man—has been combated even by those whom one would imagine had imbued the idea of the proven truth of the thesis implicit in Darwin's greatest work.

In the clear light of sound judgment eugenics is the natural outcome of Natural Selection, with this difference that whereas the Darwinian truism was limited to natural selection, the Galton theory insists on the benefits which would accrue from conscious selection. With Darwin, the dictum, the survival of the fittest did not mean the best as the unthinking part of the public persisted in maintaining and still maintain despite illuminating articles to the contrary but those best adapted to the conditions of their environment. These conditions make possible man's moral sense and higher intellectual faculties, and following the laws of cause and effect, the fittest coincide with what is generally called the best. As can readily be seen if those best adapted to their environment outlive those badly conditioned on account of physical, mental or moral defects, an improvement must necessarily take place in the human breed.

Eugenics has too much aggression to be satisfied with natural selection, it boldly voices the feeling immanent in the compulsory thought of the elect of the present century, by demanding, albeit with considerable grace, man's conscious co-operation in connection with the Darwinian teaching.

Mr. Francis Galton, the originator of the theory, advances good and sound reasons for his belief in the physical, mental and moral uplift of the human race, basing them on what was accomplished by his dis-

tinguished cousin's advocacy of natural selection. Despite what superficial critics may say about man being intolerant of interference with his matrimonial intentions, we need cite but a few instances to show, that the so-called independent and restive creature endowed with the highest mental and moral faculties, is quite submissive to many potent social and religious restrictions. Monogamy has already metamorphosed non-monogamous man into a being whose sense of honor is outraged by the mere thought of polygamy.

It requires no great understanding to be cognizant of the fact of man's passivity under the law against the marriage of first cousins and the social custom obtaining when persons very disparate in social status wish to marry. Endogamy has received the sanction of religion and been enforced by law in all ages and in many parts of the world. Finally, we have religious control establishing celibacy. Thus we see that social and religious customs are not new but have been in force æons, accomplishing to some extent by unconscious eugenics what Mr. Francis Galton wishes to achieve to-day by making his theory part of the national conscience—a new religion. If interference in the past, as mentioned above, was for the good of the race, and this must be admitted by the unbiased, how much greater will the improvement be when conscious eugenics shall control the marriage of the epileptic, the borderland insane, the consumptive and the criminal.

LITERARY NOTES.

Heineman, of London, will shortly issue *Medical Hygiene*, the Harben Lectures of Dr. Elie Metchnikoff.

The Organization, Construction and Management of Hospitals, by Dr. Albert J. Ochsner, has recently been published by the Cleveland Press of Chicago. It is a work of interest to those contemplating the erection and management of modern hospitals.

Surgery: Its Principles and Practice, edited by Dr. W. W. Keen, of Philadelphia, the first volume of which has just been published by W. B. Saunders & Co., will consist, in its complete form, of five octavo volumes of about 800 pages each, and will contain over 1,500 illustrations. There are sixty-five contributors of various nationalities, all recognized authorities in the several provinces.

The Macmillan Company have in preparation *Alcohol and the Human Body*, a Study of Modern Knowledge on the Subject, by Sir Victor Horsley and Miss Mary Sturge, M. D.; *Collected Papers on Circulation and Respiration*, by Sir Lauder Brunton; *Studies in the Bacteriology and Etiology of Oriental Plague*, by Dr. E. Klein; *The Clinical Study of Epilepsy*, by Dr. W. Aldren Turner; a new volume of *The Cambridge*

Natural History, dealing with Protozoa, Coelenterates, Echinoderms, etc.; and Some Points in the Surgery of the Brain and Its Membranes, by Mr. Chas. A. Ballance.

Dr. Rodolfo del Castillo y Quartiellers, Ophthalmic Surgeon to the Instituto Rubio of Madrid, author of *Epigrafía Oftalmológica Hispano-Romana*, and a monograph on the Code of Hammurabi and Ophthalmology in Ancient Babylon, has recently published a work dealing with ophthalmology in the time of the Romans (*Oftalmología en Tiempo de los Romanos*). In this work special studies are made of the seals of Roman oculists. A chapter is devoted to that of Caelius Diadumenus, generally known as the Madrid seal. Inscriptions on the tombs of Roman oculists are treated in another chapter. Considerable space is devoted to the collyria used by Roman oculists as well as therapeutics, *materia medica* and operations on the eye. An extensive bibliography and an epilogue add value to the book. Needless to say, Dr. Castillo is no mere pedant with a dry-as-dust literary style, but a writer of grace and distinction which make his latest contribution enjoyable alike to all readers, be they learned or not in diseases of the eye or in archæological lore.

A few years ago it was a common experience to hear the late Lord Acton spoken of as the historian who had never written a line of history. It is only since his death that the work of the Cambridge Regius Professor has appeared in its true light. Although it is true that Lord Acton's productiveness was small as compared with the enormous extent of his learning, yet he managed to pack a considerable amount of significant material into the works he actually produced. The Cambridge Modern History is of course his monument, although none of the actual writing in that work is credited to him. A volume from his own hand which has just been issued under the title, "Lectures on Modern History," covers substantially the ground of his most famous lectures at Cambridge, and fairly represents him as an author in a field where his authority is unquestioned.

MEDICAL AND SURGICAL PROGRESS.

INTERNAL MEDICINE.

IN CHARGE OF

JESSE S. MYER, M. D.

THE PATHOLOGY AND THERAPY OF GALL STONE DISEASE.—v. Aldor (*Berliner Klinische Wochenschrift*, No. 38, 1906).—Based upon the observation of others as well as upon his own experience in the treatment of gall stones, the author discusses the medical treatment of gall stones, and recommends the greatest care in the selection of the surgical cases. According to Riedel's figures two million people in Germany have gall stones, but of this number only one hundred thousand have "gall stone disease," that is, have clinical manifestations. He calls attention to the fact, too, that in autopsies many cases of gall stones are discovered in which there has been no evidence of their existence during life, and in which the mucous membrane shows no pathological changes. The author has frequently seen cases in which gall stones unquestionably existed, enter into a latent state without the gall stones ever having been passed. On the other hand he has seen cases, in which a large number of gall stones have been passed, persist in spite of the fact. Korte states that he has operated upon cases with typical symptoms of cholelithiasis and found an infectious cholecystitis with no gall stones present. In seventy-six operations he has made careful bacteriological examination with positive results in all.

These facts together with many interesting observations of the author himself lead him to believe that surgical interference was justified in a very small percentage in many of the cases. The early operation in cholelithiasis is seldom if ever indicated because gall stone is a benign disease in which there is a great tendency to absolute cure. The treatment will depend, of course, upon the individual case. The author, however, leans naturally to the Carlsbad treatment.

NINE CASES OF APPENDICOSTOMY AND CECOSTOMY FOR THE RELIEF OF CHRONIC DIARRHOEA.—Gant (*Boston Med. and Surg. Journ.*, Sept. 6, 1906).—The author recognizes the fact that the original cause of chronic diarrhoea is most often above the ileo-cecal valve, but also believes that "the lesions in the colon, sigmoid and rectum thus produced not infrequently remain as an independent and continuing cause of the diarrhoea long after the original ailment * * * is relieved or cured." He reports nine operative cases, seven of which resulted in cure after other methods had failed. One case was unsuccessful because of a stricture of the transverse colon. One case died as a result of gangrene of the appendix and cecum, showing that the operation is not without its own dangers. Irrigations of saline solution, ice water, nitrate of silver, etc., were used. Three resistant cases of amebic dysentery were especially successful under this treatment.

REPORT OF A CASE OF SACRO-TERATOMA.—Leopold and Philips (*New York Medical Journ.*, Sept. 8, 1906).—The tumor was an irregular, nodular mass, 14 cm. wide by 7 cm. long, springing from the sacral region of the fetus. The microscope revealed a great variety of tissue elements, sebaceous glands, adipose tissue, fibrous, reticular, and elastic tissue, smooth muscle, hyaline cartilage, bone, ganglion cells, adenomatous glands, etc.

THE INFLUENCE OF A FAT DIET UPON SUGAR WASTE.—Bondi and Rüdinger (*Wien. Klin. Wochen.*, Aug. 23, 1906).—The authors have conducted observations regarding the metabolism of fats and carbohydrates in diabetes. The facts already established that acetonuria in diabetes can be diminished by giving a more liberal carbohydrate diet, and that a high glycosuria may be lowered by increasing the fats, have been the basis of their experiments. They present several tables showing the influence of variations in the diet upon the sugar and acetone output, and from a comparison of these they conclude that when a certain ratio is established between the ingested fat and carbohydrate there is a considerable diminution both in the amount of acetone and of sugar in the urine, provided, however, that the case of diabetes is not of the very severe grade, and that the amount of carbohydrate given is not excessive. For explanation of these facts they incline toward the theory advanced by Gellmuyden, that in the normal body the fats enter into definite chemical combination with the carbohydrates (or their derivatives) forming a third substance which enters into the body metabolism.

ANGINA PECTORIS.—Gibson (*Practitioner*, Sept., 1906).—The author believes the disease is due to an interference with the nutrition of the heart muscle, by (1) diminished blood supply, or reflexly by (2) irritation of sensory nerve endings, these resulting in an impairment of the function of contractility. Under the first he places aortic, coronary, or myocardial lesions, and pulmonary and kidney lesions resulting in increased blood pressure. Under the second, disturbances of abdominal viscera, meteorism, gastric catarrh, etc. "The arteries may be healthy or sclerosed, the pressure may be low or high, the rhythm may be regular or otherwise." The nitrites and ethyl iodide are recommended in acute attacks, five drops of the latter with ten drops of chloroform being especially favored. Preventive treatment deals with the causes as outlined; regulation of the diet, respiratory movements, massage, heart tonics, etc. The iodides in chronic hypertension and the bromides in reflex irritability and neurasthenic tendencies are recommended.

INJURIES TO INTERNAL ORGANS THROUGH THE USE OF ROENTGEN RAYS, AND PRECAUTIONS FOR PREVENTING THEM.—Kraus (*Muench. Med. Woch.*, Sept. 4, 1906).—French authors first directed attention to the fact that following the use of the x-ray for therapeutic or diagnostic purposes, clinical manifestations, such as headache, palpitation of the heart, insomnia, digestive disturbances, etc., often developed in the patient. These observations led them to the conclusion that the internal organs as well as the skin may suffer injury from the application of the rays.

Since their publication many cases have been reported—diarrhœa, urinary and menstrual disturbances, manifestations similar to those of sun-stroke, etc., have often been observed. The author reviews the literature on this subject and recommends various appliances, methods and precautions for preventing these injuries both to the patient and the operator.

THE CURABILITY OF TUBERCULOUS MENINGITIS AND THE THERAPY EMPLOYED.—Riebold (*Münch. Med. Woch.*, Aug. 28, 1906).—The author reports an exceedingly interesting case of recovery from tuberculous meningitis in a girl of 16, with typical symptoms, the diagnosis being confirmed by the finding repeatedly of bacilli in the spinal fluid and by the successful inoculation of guinea pigs. The patient was treated by daily spinal puncture, with a total of 574 ccm. withdrawn in 24 punctures. Motor and sensory aphasia were prominent symptoms and lasted sometime into convalescence. The author thinks good can be done by the spinal puncture, and advised its daily practice as long as the intraspinal pressure remains at 25 cm. of water, or above, and withdraws 25-30 ccm. of the fluid.

PATHOLOGY AND BACTERIOLOGY.

IN CHARGE OF

CARL FISCH, M. D.

NEW METHOD OF INCREASING THE NUMBER OF TYPHOID BACILLI IN BLOOD.—Meyerstein (*Münch. Med. Woch.*, 1906, No. 38).—By Conradi and Kayser it has been shown that the addition of bile to blood to be examined for the presence of typhoid or paratyphoid bacilli will greatly increase the number of bacilli primarily present and thus facilitate their cultural isolation. Meyerstein extended the method to the use of the active bile constituent, the biliary acids, for the preparation of which he gives a simple method. A small amount of the substance added to the blood prevents coagulation, and after a short period of incubation shows a great increase of the number of typhoid bacilli that could be demonstrated primarily. In this way he often demonstrated them, before the Widal reaction was present. The method is well adapted to general use and much more convenient and certain than all of the other procedures used for the cultivation of the bacilli. It can easily be performed in the sanitary work of health departments and other centers of bacteriologic examination. As to diagnosis, the results would be quicker and more reliable than by the Widal reaction as the latter is usually employed.

THE PRECIPITATE REACTION. A CONTRIBUTION TO EARLY DIAGNOSIS OF TYPHOID AND OTHER INFECTIONS.—Fornet (*Münch. Med. Woch.*, 1906, No. 38).—While the precipitate reaction has been of great importance in the differentiation of many biologic questions, this reaction has not been utilized as far as the bacterial precipitins are concerned. Fornet has found that the serum of an animal injected intravenously

with certain cultures gives a precipitate with an immune serum prepared with the same cultures. It does this at a time when no agglutinative or bactericidal qualities have yet appeared. In these early stages of infection, therefore, this precipitinogen is already present and can be demonstrated by its action on immune serum before the other serum reactions have become established. The application of the method to several cases that later proved to be typhoid proved positive in the first days of the disease. The Widal reaction was present at a much later period. The idea of utilizing the precipitin reaction for early diagnosis recommends itself in suspicious cases where need of an early diagnosis is necessary. Theoretically, the method is very important and will lead to a closer understanding of the precipitin-phenomenon.

THE INTESTINAL ORIGIN OF PULMONARY TUBERCULOSIS AND THE MECHANISM OF THE TUBERCULOUS INFECTION.—Calmette and Guerin (*Ann. de l'Inst. Past.*, 1906, No. 8).—The work of Calmette and Guerin is an indirect consequence of the pronunciamientos made by Behring about two years ago on problems of tuberculous infection. While many of the latter's statements must be renounced because unjustified and unsupported by experimental or clinical facts, we must admit that they have furnished a stimulus for intensive work on many problems that were considered solved by clinical, statistical and even experimental data. The port of entry of the tuberculous virus in the most frequent localization, the lungs, has been thought to be by direct inhalation into the structures of these organs, at least in the majority of cases. Flügge, even after Calmette's publication, tries to confirm this conception by numerous experiments, original in their method, it is true, but not excluding the possibility of the action of those factors which Calmette and Guerin have positively shown produce the same clinical condition as that supposed to be due to inhalation. Furthermore, they have shown that direct inhalation and infection occur, but that the picture and character of the primary lesions in these cases are totally different from the vast majority of cases in which beginning pulmonary infection can be studied. It is especially this demonstrative exhibition of the total difference in pathologic effects and nature of the intestinal and inhalation infection that forms the authors' most convincing argument. We must admit, therefore, that slowly and gradually our ideas concerning the avenue of the infection have changed, even in the clinical consideration of tuberculosis. Behring has stimulated closer observation, deeper search, and instances where the inhalation theory cannot explain the course and the progress of the disease have become very numerous. The difficulty lies in the human race where only seldom, still too infrequently, the pulmonary disease is recognized in its incipient condition. That it is impossible from advanced processes to determine how the infection took, was recognized in this condition as well as in other pathologic processes; their origin can only be studied in the beginning. This Calmette and Guerin have done, and thus they have accumulated a bulk of experimental evidence that is sufficient to be looked upon as conclusive also for the processes going on in the human disease. One of the most important demonstrations is the proof that the tuberculous virus can leave the port of en-

trance without causing any histologic alterations in it. This has been demonstrated previously by Behring, Baumgarten, Uffenheimer, etc., but it has never been made so plain and free from objections as have the French authors. There is no doubt that the conception of the primary entrance of tubercle bacilli along the whole length of the gastrointestinal tract, beginning with the buccal cavity, will in the future play the main part in attempts at prevention. In fact very few observations could be cited in which a direct inhalation was accessible to direct proof. The many other suggestive results obtained, for instance the quantitative relations of the virus to the activation of infection, etc., cannot be followed here in detail. Calmette's and Guérin's paper, theoretically and practically, is of immense importance and will materially aid in the more successful battle against the disease. It will also sweep away many inconveniences caused by the reign of the inhalation theory.

A STUDY OF THE SO-CALLED INFECTIOUS LYMPHOSARCOMA OF THE DOG.—Beebe and Ewing (*The Journ. of Med. Research*, Vol. XV, No. 2).—The study of a canine disease, characterized by transmission through coitus and by tumors of the genital organs, by multiple secondary tumors of the skin and metastases into various lymphatic glands, has been undertaken by many observers. The main feature of the process, the immense infectiousness of large, well defined tumors, has caused Beebe and Ewing to make a thorough experimental investigation of the disease to contribute to the general problem of tumors. The disease is widely distributed over Europe and is not uncommon in North America. Both sexes are affected, mostly in the young or middle aged state. As to the clinical phenomena, it may result in spontaneous recovery, but generally it ends in cachexia and death. The tumor masses consist of a tissue, in some respects resembling the large celled human lymphosarcoma. The authors point out certain histological differences that make it doubtful if the name lymphosarcoma is correct. The main result of their investigations is a refutation of the assertions of Bashford, Murray and Cramer, who, studying the same disease, maintained that inoculations of tumor tissue resulted in disintegration of this tissue and in a stimulation of the surrounding cells of the inoculated animal, taking on the character of tumor cells. By careful experiments Beebe and Ewing have shown that this is not the case, but that in spite of the disintegration of the majority of the inoculated cells, portions always remain, which by the presence of mitoses and frequent divisions, demonstrate that they are the builders of the tumor. This point is very important as it does away with the presence of a parasite which English authorities supposed to be the cause of the tumor formation. If such parasite exist it must be in such intricate connection and union with the tumor cells that we cannot imagine such a possibility, and certainly we do not know of any analogous condition in other parasitic infections. The main value of the work is an almost conclusive demonstration of the tumor nature of the nodules, which in regard to growth and dissemination, or metastasis, behave like other well-known sarcomata. The authors express themselves in regard to the parasite question, in these words: "Our only knowledge of the parasite's existence is its supposed responsibility for the growth

activity of the tumor. Since the life of the parasite and the manifestation of its activities in producing a malignant growth are absolutely dependent upon the transfer of a living tumor cell from one individual to another, there can be no objection to considering the tumor cell the essential infecting agent in the process of transmission. Such conditions imply a symbiotic relation between the two consociating cells that is without analogy in such cases as have been investigated in the animal or vegetable kingdom. The conditions require so intimate and vital a relation between parasite and tumor cell, that it is impossible to make any distinction between them."

The detailing of the modes of transmission in experiments may be omitted here. Attention is called to the paper mainly on account of the great importance it will have in facilitating experimentation in various lines on the nature of tumor growth. As to the origin of this tumor, naturally the work gives no explanation.

DIAGNOSIS.

IN CHARGE OF

ALBERT E. TAUSSIG, M. D.

THE AUSCULTATION OF VERTEBRAL COLUMN, SACRUM AND PELVIS.—Ludloff (*Munch. med. Wochenschr.*, 1906, No. 25).—The writer makes much use of auscultation and percussion, especially of the former, in the diagnosis of surgical affections of the bones. He uses percussion chiefly to define accurately the seat of pain, over which area he then auscultates carefully, often with the most astonishing result. The method is most valuable in affections of the vertebral column, the sacrum and the pelvis. Thus in the lumbar pain of old women, in which an x-ray examination is usually quite negative, the writer has found on auscultation a distinct cracking and creaking when the spinal column was moved. The seat of the trouble was usually the articulation of the sacrum with the lumbar spine. The sounds were confined to a small circumscribed area, being absent elsewhere over the vertebral column. The inference of a hypertrophic arthritis deformans localized there seemed natural, and indeed a renewed and more careful x-ray examination often showed the presence there of small deposits on the articulating surfaces. This affection seems to occur much more frequently than is generally recognized and is the cause not only of the usual dull back-ache but of lumbar and sacral neuralgias and not infrequently, if the intervertebral foramina are affected, of true sciatica. The writer has also auscultated the vertebral column in cases of occipital headache and twice has come across a distinct friction rub between atlas and occiput as well as between atlas and axis. In such cases the proper diagnosis is of great therapeutic importance. The writer reports a number of similar cases of great interest for which the reader must be referred to the original article.

GLYCOSURIA AFTER FRACTURES.—Konjetzny (Inaug-Diss. Ref. in *Wiener klin. Wochenschr.*, 1906, No. 31).—In 19 cases of fracture, one of them complicated, the writer tested the 24 hours' urine for sugar. Whenever the urine did not contain sugar during the first or second day after the trauma, grape-sugar was given with the food in order to demonstrate the presence or absence of an alimentary glycosuria. In 8 of the 19 cases (42 per cent.) a spontaneous glycosuria occurred; in 5 cases (26 per cent.) an alimentary glycosuria was elicited. The other cases (32 per cent.) gave a negative result. The average duration of the glycosuria was 3 to 4 days, the amount of sugar secreted rapidly diminishing. The cause of this glycosuria is not clear. It may be fat-embolism, or more probably the setting free by means of the destructive action of the osteoclasts of intracellular enzymes that exert an inhibitory action upon the normal glycolytic ferments. In any event this form of glycosuria must make us cautious in the interpretation of the results of urine analysis after trauma.

A NEW MODIFICATION OF THE BENZIDIN TEST FOR BLOOD.—Schlesinger and Holst (*Deutsch. med. Wochenschr.*, 1906, No. 36).—The importance of careful tests for blood in the stool can hardly be overestimated. It is often by this means alone that obscure cases of gastric ulcer or of incipient gastric cancer can be diagnosed. The usual tests with aloin or guaiac as ordinarily performed are not sufficiently delicate nor entirely reliable, whereas the preliminary manipulations necessary to render them sharp and delicate are complex and troublesome. The benzidin test as described by Schumm, on the other hand, is so excessively delicate as to give a positive reaction with every normal stool. The writers have accordingly endeavored to elaborate a method which shall at once be simple and delicate, while at the same time not too delicate for clinical purposes. Their method is as follows:

I. Into about 2 cc. glacial acetic acid drop a little benzidin (Merck) so as to produce a saturated solution. Set aside for a few minutes for saturation to take place.

II. A piece of stool about the size of a pea is placed in a clean test tube filled to about one-fifth its height with water and rubbed up with a glass rod. Heat the emulsion to boiling.

III. Into a clean test tube 10 to 12 drops of the benzidin solution, add a few cc. of 3 per cent. hydrogen peroxide and finally a few drops of the boiled feces.

IV. In the presence of blood a blue color results, unless the blood is present only in the smallest traces. In that case the color is bluish green or green. The reaction is usually instantaneous but may require half a minute.

The test should not be performed until the patient has been put on a diet free from meat for at least three days, since the test has been found found positive 60 hours after the last meal containing meat. Its delicacy is shown by the fact that 10 drops of blood taken with the food suffice to render the test positive with the corresponding feces.

This same modification of the benzidin test was also found to give trustworthy results when applied to stomach contents.

PHILIPPOWICH'S SIGN IN TYPHOID FEVER.—Minciotti (*Gaz. d. osped.*, 1906, No. 36).—In 1893 Philippowich called attention to a symptom which he considered pathognomonic for typhoid fever. It consisted of a dirty yellow discoloration of the skin on the palms of the hands and the soles of the feet, suggesting the stain produced by picric or nitric acid. The importance of this sign has been recognized chiefly by French authors. It seems to occur most markedly and frequently in children, less so in women and least in men. The writer again calls attention to this somewhat neglected sign and reports in detail a case in which it was accompanied by violent pain in the affected areas. From a study of his cases he concludes that while most frequently found in typhoid fever and therefore of some diagnostic importance, it may also occur in anthrax, miliary tuberculosis and empyema.

PSEUDO-CHYLOUS EXUDATES.—Zypkin (*Wien. kl. Wochenschr.*, 1906, No. 34).—In two cases of tuberculosis, complicated by peritonitis, the writer obtained on tapping, a milky fluid that macroscopically could not be distinguished from a chylous exudate. Microscopically, however, no fat was found. The cause of the opalescence is not clear; it may have been due to the imperfect solution of certain of the constituents such as lecithin, globulin, nucleo-albumen and the like.

THE TECHNIQUE OF THE EXAMINATION OF THE URINE AND FECES IN SUSPECTED CASES OF DISEASE OF THE PANCREAS.—Cambridge (*Surg., Gyn. and Obst.*, 1906, III, No. 3).—Some two years ago, Cambridge announced his discovery of the presence in the urine of a carbohydrate yielding a certain reaction and present apparently only in acute and chronic pancreatitis. The tests for this substance were complex and somewhat difficult of execution. He has since worked out a simplified method which is as follows: To 20 cc. of the clear, filtered urine, which must be free from sugar and albumen, 1 cc. of strong hydrochloric acid is added and the whole gently boiled for 10 minutes. Then cool, replace the evaporated water and neutralize by adding 4 g. lead carbonate; free from excess lead by adding 2 g. magnesium sulphate and boiling; filter until clear. To 10 cc. of the filtrate, in a small flask with a funnel to act as condenser, add 8 cc. distilled water, 8 g. phenylhydrazin hydrochlorate, 2 g. powdered sodium acetate and 1 cc. of 50 per cent. acetic acid. Boil for 10 minutes and filter while hot. In well-marked cases of pancreatitis, a light yellow flocculent precipitate should form in a few hours, but in less advanced cases it may be necessary to allow the preparation to stand over night before a deposit appears. Under the microscope, it is seen to consist of long, light yellow, flexible, hair-like crystals, soluble in 33 per cent. sulphuric acid. To exclude traces of sugar undetected by the preliminary reduction tests, a control experiment should be carried out by treating 20 cc. of the urine as above, excepting for the addition of hydrochloric acid. If sugar is present, it must be removed by fermentation. This test at first sight seems very complex. It is, however, not really so and can readily be performed by any one with elementary laboratory facilities. In a large number of cases in which the test was applied, the author always found it present when operation or

autopsy showed the existence of a pancreatitis, never apparently when pancreatitis was absent. As regards the feces, he advises besides the usual microscopic and chemical methods, a rough determination of total, neutral and acid fats. It seems to the abstractor, however, that the microscopic determination of the extent of fat and meat digestion would pretty well serve the same purpose. The writer does not claim that his methods are pathognomonic, but only that they are useful aids to diagnosis. His experience on the pathologic side and that of Mayo Robson on the clinical seem to show that the probabilities of an erroneous diagnosis being made in cases of suspected pancreatic disease are appreciably diminished if the results of a careful examination according to his methods of urine and feces are considered in conjunction with the clinical evidence.

FREE HYDROCHLORIC ACID IN STOMACH CONTENTS.—Dreser (*Hofm. Beitr. z. chem. Phys. u. Path.*, 1906, Nos. 5-7).—Dreser's investigations into the nature of the acidity of the gastric juice show clearly that free hydrochloric acid may be present even when the congo-reaction and the other color reactions are negative.

THE DIAGNOSTIC VALUE OF TUBERCULIN.—Bandelier (*Beitr. z. Klinik d. Tuberk.*, 1906, Vol. VI., No. 1).—This entire number of the journal is devoted to articles by Bandelier. He is still strongly impressed with the diagnostic value of tuberculin injections. They must, however, be administered according to Koch's original directions and no reaction should be considered negative unless 10 mg. have been injected at least twice at a sufficient interval. The reaction may also be obtained when tuberculin is inhaled. Bandelier, however, decidedly prefers the hypodermic method for diagnostic purposes and still more for therapeutic ones.

THERAPEUTICS.

IN CHARGE OF

WALTER BAUMGARTEN, M. D.

THE NEUTRALIZING EFFECT OF KIDNEY EXTRACT ON THE TOXIC INFLUENCE OF URAEMIC BLOOD.—Sutter (*Compt. rend. hebdom. de Biol.*, No. 27, 1905).—The blood of a uræmic animal injected into a normal one diminishes diuresis, and may even produce anuria, the uræmic blood having a specific inhibitory action on the renal epithelium. An antitoxin, antagonistic to this toxic action of uræmic blood, may be obtained from normal kidneys by making an extract with physiological salt solution or glycerin. The antitoxic action of the extract may be demonstrated *in vitro* by mixing it with uræmic blood, which, on injection into an animal, fails to produce its usual inhibitory result; it may also be shown by following the injection of uræmic blood by an injection of the extract, which also prevents the usual diminution of the urine. The albuminuria which follows such injection may be produced

by the toxins contained in the uræmic blood, but Sutter is inclined to think that it may arise quite as well from the (hæmolytic) action of the blood aside from the uræmic toxins which it may contain. The results of this investigation give a theoretical basis for the administration of kidney extracts in diseases of the kidneys.

THERAPY OF BRONCHIAL ASTHMA.—Zuelzer (*Therap. d. Gegenw.*, Sept., 1906).—The analysis in the Pharmacological Institute of Bonn of Tucker's asthma cure, a proprietary inhalant, showed that it consisted essentially of sodium nitrite and atropin, one gram of the latter to 100 g. of the liquid. The effect of many drugs when absorbed through the tracheal mucous membrane is very similar to the effect when given hypodermically. This leads Zuelzer to direct attention to the fact, generally overlooked, that the atropin hypodermically is a very efficient agent in the acute asthmatic attack. It has been shown experimentally that stimulation of the vagus causes a contraction of the bronchial muscle bundles, which is followed by a progressive distention of the lungs. This may be seen by removing, in the rabbit, the intercostal muscles, and observing that the lower border of the lung is gradually pushed down lower and lower. Zuelzer reports a case in which, probably as a result of intestinal intoxication due to a prolonged constipation, there was orthopnea, expiratory dyspnea, depression of the lower border of the lungs to the right rib in front, slow pulse (60), and a vagus very sensitive to pressure; the picture of bronchial asthma without the piping, musical rales on auscultation. After increasing in severity until the patient was on the verge of collapse, this attack was controlled within fifteen minutes by a hypodermic injection of 1 mg. of atropin sulphate. The writer, therefore, considers the essential character of the asthmatic attack to be a vagus irritation from some cause. The associated inflammation and congestion of the bronchial mucous membrane he considers secondary. He urges the more frequent use of atropine hypodermically in these attacks as being fully as efficient, more rational, and free from the disagreeable effects of morphine, with which, in case of need, it may be alternated with advantage.

THE TREATMENT OF TUBERCULOUS MENINGITIS.—Riebold (*Munch. med. Wochensch.*, No. 35, 1906) reports the cure of a case of tuberculous meningitis in which the diagnosis was confirmed by the finding of tubercle bacilli in the spinal fluid and also by inoculation of guinea-pigs. The treatment consisted in daily lumbar punctures, which were continued for six weeks. The improvement in general condition and in individual symptoms was striking after each puncture. The frequency with which these must be done should be controlled, (1) by the pressure under which the cerebro-spinal fluid is found to be and the amount which may be obtained under a moderate pressure; and (2) by the urgency of subjective symptoms, and particularly of symptoms of intracranial pressure; (3) the amount of albumin in the cerebro-spinal fluid tends to diminish as improvement progresses. The writer offers this method of treatment as one which holds more hope, even though slight, than any other previous method.

EFFECT OF X-RAYS ON CHRONIC BRONCHITIS AND BRONCHIAL ASTHMA.—Schilling (*Münch. med. Wochenschr.*, No. 37, 1906) observed in a case of bronchial asthma that x-rays applied to the chest for purposes of examination greatly relieved the paroxysm and reduced the quantity of sputum, which was great in this case. He repeated the experiment in seven cases of chronic bronchitis, in all of which the cough and dyspnoea were at once greatly improved, the sputum reduced in quantity, disappearing in from three days to two weeks, while at the same time the signs on auscultation gradually improved. The x-rays were given daily, each day over a new area, and when possible over the area in which the greatest number of rales were found. Exposure varied from 5 to 20 minutes. Freedom from cough and sputum continues for two to three months. What the mode of action is the writer does not attempt to determine.

SURGERY.

IN CHARGE OF

WILLARD BARTLETT, M. D.

SURGICAL TREATMENT OF EXOPHTHALMIC GOITRE.—Shepherd (*Jour. A. M. A.*).—Although in many instances contraindicated, in a certain number of cases of exophthalmic goitre, operative measures either cure or lead to great improvement. Hyperactivity of the thyroid is probably the cause of the disease; however, the part played by the thymus gland and other causes in this disease complex cannot be ignored. Shepherd thinks early operation is the safest, and the class of cases most likely to be benefited are not the most severe ones, but those in which the gland is more enlarged on one side than on the other, with more definite tumor formation, and in which the gland is not so excessively vascular, and the enlargement in early cases of enlarged thyroid, with mild symptoms in which the gland is soft, vascular and evenly enlarged throughout, the results of operation are usually good. With large vascular thyroid and symptoms of marked toxemia from thyroidism, operations should be avoided. In selected cases, general anesthesia is not considered dangerous. The statistics of various operators show good after-effects and many cures. Seventeen cases are reported. There were three deaths, all in desperate cases; nine complete cures, three were much improved, one relapsed, one lost sight of, though improvement followed operation. Sixteen of the patients were females. Symptoms in all were sufficiently distressing to call for operation. Shepherd does not think the pathology of the disease is definite enough to make a microscopic examination of great importance.

GASTRIC ULCER AND CANCER.—Graham (*Boston Med. and Surg. Jour.*, Aug. 2, 1906).—In 39 out of 81 cases of gastric cancer occurring in St. Mary's Hospital, a pathological examination was made. Fifty-four per cent. of these gave pathological evidence that the cancer had devel-

oped from an old ulcer. There was fair evidence of preceding ulcer in 25 per cent., and 8 cases gave no evidence of preceding ulcer irritation. Of the 39 cases there were 21 who gave long histories, 14 of which gave good pathological evidence; in 6 cases with long histories the evidence was considered only fair; 7 cases with histories varying from two months to two years gave good pathological evidence, and 4, of which the histories covered from one and one-half months to two years, offered fair proof. By the above figures, two points are emphasized: 1. That short histories and ulcer as the old lesion on which cancer is engrafted are not incompatible, as some argue. 2. That ulcer is a fertile soil for cancer.

The clinical history of gastric cancer based on ulcer is reviewed in detail, and the course divided into four periods: First, premonitory stage of gastric ulcer; second, stage of well-developed ulcer; third, transition period; fourth, stage of well-developed cancer. Males and females were affected in the ratio of four to one. The symptoms were present for only a year or less, in three-fourths of the cases. Of the 81 cases all but 8 complained of pain; 68 were troubled with vomiting. In 27 tumor was present, doubtful in three. There was dilatation in 54, and in 36, obstruction. In 32 cases free hydrochloric acid was found, and combined hydrochloric acid was present in 32 cases. Lactic acid was found in 42 cases, fatty acids in 19, and both hydrochloric and lactic acids in 13 cases.

GASTRO-MESENTERIC ILEUS.—Finney (*Boston Med. and Surg. Jour.*, Aug. 2, 1906).—There is a certain group of cases which present symptoms of acute dilatation of the stomach, which at autopsy show in addition to the dilatation an obstruction of the transverse duodenum by the edge of the mesentery, while the small intestines collapse and fill the pelvis. Finney thinks that many cases thought to be acute dilatation of the stomach are really cases of gastro-mesenteric ileus. It is frequently overlooked at autopsy because not suspected. It has not yet been determined whether the gastric dilatation or the obstruction of the duodenum is the primary condition; however, we must recognize that in these two conditions we have factors which may produce a so-called vicious circle. Indiscretions in diet, enteroptosis, debility, surgical operations and narcosis are considered etiological factors by the author. Grave toxemias and severe injuries might be added to the above causes. The author thinks chloroform narcosis comes first of the surgical causes. The symptoms of this condition are frequent vomiting of large quantities of fluid, greenish or yellowish at first, later black; abdominal pain at the outset; distention of the abdomen usually present; tenderness, rapid pulse, normal or subnormal temperature, and constipation. The urine is much reduced in quantity. It would seem that the diagnosis would be easy, but such is not the case. The condition is in the majority of instances mistaken for intestinal obstruction or peritonitis, especially the latter. The most important differential points in the diagnosis are: The characteristic clinical picture described above, the use of the stomach tube, and the presence of succussion. The treatment consists chiefly in the use of the stomach tube and avoidance of the dorsal decubitus. The knee-chest position should be resorted to in stubborn cases. Large doses of strychn-

nin and atropin have been recommended. Gastro-enterostomy usually fails. Manual replacement of the misplaced viscera through an abdominal incision should be carried out when ordinary measures fail. The prognosis is grave, most cases ending fatally.

THE FURTHER DEVELOPMENT OF THE OPERATIONS FOR HIGHLY SITUATED CANCERS OF THE RECTUM.—Kraske (*Archiv. für klinische Chirurgie*, 80 Band, 3 heft).—It is a matter of more than passing interest to note what the father of this kind of surgery has to say of late developments in a field of which he was the pioneer. The early operators did what is known as a combined operation, when, having commenced behind, they found it impossible to proceed any further and as a last resort opened the abdomen in an effort to complete the work. The mortality which attended such operations was naturally very high and discouraging, to say the least. Today the combined operation should be taken to mean exactly the reverse of what has just been stated, namely, the abdomen must first be opened, and then the work must be supplemented through the lower and posterior route. There are numerous reasons why this method of procedure must be followed; the principal ones are that asepsis is conserved and, further, that many cases cannot be correctly judged as to operability until the abdomen has been opened. In France it has been the custom for some time to divide the bowel and at once make an artificial anus before proceeding to extirpate the growth. Our author will not say that he is decidedly averse to such a procedure in every case; however, he does not do this when there is the slightest possibility of rejoining the divided intestine and re-establishing the natural passage. For him the normal procedure must always be a resection rather than an amputation. He first opens the abdomen, then cuts the gut in two, ligates as many vesicles as possible from within, pushes the mass down, and completes the work through a sacral opening after closing the abdomen. Then, as a last step, he pulls down the upper piece of intestine and sews it to the lower. This is a long operation, and hence dangerous, as far as the anesthetic is concerned; hence he advises that spinal anesthesia be used. It is remarkable that this operation has proved decidedly more dangerous in men than women—something which is explained by anatomical conditions.

THE FATE OF SILVER WIRE USED IN SUTURING THE BROKEN PATELLA.—V. Brunn (*Beitrage zur Klinischen Chirurgie*, I. Band, I Heft).—For many years it has been the custom in the clinic at Tuebingen to suture every broken patella where there is much spreading of the particles, as well as old cases in which conservative treatment has been unsuccessful. Silver wire was used, and this was usually run through the bone in the horizontal direction, care being taken to avoid the joint surfaces. The most of these cases were examined years later and with results that could hardly have been expected. Many of the patients complained more or less of painful sensations in the vicinity of the field of operation, even where the functional result proved to be entirely desirable. Apparently this was due to the presence of the wire alone. In fact, one said that he always felt as though something was sticking him directly in the joint.

As above stated, these were all practically cured cases, although in only one of the twelve such instances did the x-ray show the wire to be in the same position and condition as it had been at the operation. In the other eleven the suture material had been broken into many small pieces, and in four patients some of these particles had wandered into the cavity of the knee-joint. It is interesting to study this subject with a view to determining when the wire broke. Evidently this must always have taken place after the patient was out of bed and using the member once more, otherwise it is hardly possible that a complete cure could have been brought about by the wire. Naturally the author concludes that muscular violence had a good deal to do with the breaking of the wire. As a result of his observations along this line, our author gives the following conclusions: (1) Silver wire alone cannot guarantee the permanent position of fragments of the patella, but may break and allow these to spread. (2) A perfect bony union does not by any means guarantee against the wire breaking into pieces. (3) Such particles of wire may find their way into the knee joint, and while they do not always give rise to symptoms in this location, still they are very likely to do so.

The author advises the use of silver catgut instead of silver wire, since just as much can be accomplished by the use of the same.

ORTHOPEDICS.

IN CHARGE OF

NATHANIEL ALLISON, M. D.

COMBINED SUPERIOR TIBIOFIBULAR AND ASTRAGALOFIBULAR OSTEOPLASTY AS A MEANS TO PREVENT SHORTENING OF THE LEG AFTER EXTENSIVE OSTEOMYELITIS OF THE TIBIA OCCURRING DURING ADOLESCENCE.—Kerr (*Annals of Surg.*, Sept., 1906).—The author concludes that the periosteum can be relied upon to produce new bones, and that it is not necessary to wait for two months for evidences of repair on the part of this membrane. He is of the opinion that it is better to remove the shaft of the tibia entirely, when one feels that the vitality of the bone is sacrificed; that in properly selected cases the fibula should be substituted for the tibia as a pressure-bearing bone, in order that continued growth in the length of the leg may be maintained; that on account of the difficulty of rendering the part sufficiently aseptic, through and through drainage should be instituted before the edges of the periosteum are sutured together. He reports a case where this was done, the fibula resting on the astragalus. The result, on the whole, was a satisfactory one.

A METHOD OF DRAINAGE OF THE ANKLE-JOINT.—Bolton (*Annals of Surg.*, Oct., 1906).—In cases that have received open injuries to the ankle, and the joint has become much soiled by the introduction of foreign matter, disinfection is practically impossible, and drainage is necessary to the treatment. The author observed in many cases that the

drainage established was defective and was followed by a spreading cellulitis, general sepsis and at times amputation. He therefore determined to devise a more effective plan of drainage. A study of the anatomy of the joint from this viewpoint showed that it consists not of a single compartment, lined by synovial membrane, but rather of two, one anterior, the other posterior, separated from one another by the astragalus and the two malleoli. It seemed necessary, in order to drain the joint with sufficiency, that space would have to be provided, which would allow access to both sacs and the placing of suitable drains, through which the exudate might be discharged. The plan adopted consisted of excision of the astragalus and drainage through the space created. Since adopting this method, the author has not seen cellulitis of the leg develop, and the final results show the ankle in which there is slight motion, a foot at right angles to the leg, and the length of limb shortened but three-eighths to one-half inch.

THE ESTHETIC TREATMENT OF FRACTURES OF THE CLAVICLE.—Couteaud (*Gazette des Hopitaux*, Sept., 1906).—Fractures of the clavicle, from the point of view of absolute juxtaposition and immobilization of the fragments, are, as a rule, unfortunate and disappointing in results. This is especially true when women are the victims of this injury, as slight deformity is apt to be quite noticeable. Numerous appliances have been devised to overcome these results, but all are inefficient. The author decides that the best treatment is repose on the back in bed with the superior extremity placed over the edge of the bed and held in such a position as to keep the fragments in close apposition. This form of treatment has certain slight inconveniences, as slight edema of the upper extremity, but this last only during the first ten hours. It is necessary to have the complete collaboration of the patient, because at the first revolt on his part all that has been accomplished is lost.

CONTRIBUTION TO THE STUDY OF EXTENSION IN THE TREATMENT OF OBLIQUE FRACTURES OF THE LEG.—Merlot (*Th. de Paris*, 1906).—Oblique fractures of the tibia are accompanied by such great deformity and modifications of the static axis that apparatus for extension continue to be the only method to correct these deviations. The apparatus of Hennequin and that of Ombredonne, the latter being a perfection of the former, give excellent results in the correction of the lateral displacement of the fragment. They are each supplied with a shoe and legging, by which forcible extension can be made. These appliances have the advantage of being practical in country practice, and give results that the author finds to be constantly irreproachable.

RIGID SPINE.—Elliott (*Amer. Jour. of Orth. Surg.*, Apr., 1906).—The five observations made by the author are described under the type named by Betcherew as chronic ankylosing inflammation of the vertebral column. The first case was a Russian, aged 37 years, without family history of importance. Six years previous to his appearance he began to have radiating pains about the abdomen, this without fever. Little by little his hips and lumbar region became ankylosed, and the

spinal column became rigid as a bar, presenting a strong upward dorsal kyphosis. He could not walk without the aid of a cane, and the vertebral rigidity persisted under chloroform. He died of tuberculosis. The autopsy showed the vertebral bodies apparently normal. The intervertebral discs were atrophied, even absent anteriorly. The spinal ligaments were ossified in the lumbar region. The costo-transverse articulations were ankylosed. The second case was a Russian of 33 years, who had a history of rheumatism. Costo-vertebral ankylosis was pronounced and made respiration of an abdominal character. There was a very marked dorso-cervical tryphosis and absence of lumbar lordosis. The atrophy of his lower extremities was pronounced. Case three, a German tailor, aged 53 years, exhibited a pronounced kyphosis and limitation of motion at the hips and knees. His disease had existed for eight years. The fourth case, a German of 28 years, had rheumatism and tuberculosis. His marked kyphosis and rigidity had existed for two years and a half. The last case was a Russian of 52 years, whose affection had existed for twenty-two years, and followed a severe attack of articular rheumatism. The author has collected fifty cases of this nature and gives a complete biographical index of the subject. In more than 5 per cent. of the cases, there was history of antecedent rheumatism.

GENITO-URINARY SURGERY.

IN CHARGE OF

H. MCC. JOHNSON, M. D.

IRRIGATION AND DRAINAGE OF THE SEMINAL DUCT AND VESICLE THROUGH THE VAS DEFERENS.—Belfield (*Abstract from Proceedings Am. Assn. Genito-Urinary Surgeons*, June, 1906).—The author suggests direct irrigation and drainage, through the vas, in certain diseases of the seminal duct and vesicle, and claims excellent results have followed this method of treatment. The vas is brought up against the skin of the scrotum, an incision made down to and into it, and the cut edges then stitched to the skin, creating a fistula through which solutions may be injected into the vesicle. When desired this fistula may be closed and the continuity of the canal restored. The author has found this method to be of great value in the treatment of the following conditions: Chronic gonorrheal infections of the seminal canal, with or without a gleet discharge; chronic pus infections of the seminal canal in the middle-aged and elderly; acute gonorrheal spermato-cystitis and recurrent epididymitis.

THE DIAGNOSIS AND TREATMENT OF TUBERCULOSIS OF THE KIDNEY.—Bevan (*Jour. A. M. A.*, Oct. 6, 1906).—Tuberculosis of the genito-urinary tract, with few exceptions, begins in the kidney, prostate, epididymis, or tubes; and it is here only primary in the sense that in the individual affected they are the overshadowing and important focus of

the disease. They are strictly secondary to a small, unimportant focus in the lymphatic glands, bones or lungs, the infection occurring through the blood.

Renal tuberculosis can and does undoubtedly run, at times, a silent course, without giving rise to any symptoms, even when a single kidney has been entirely destroyed, but with attention to the symptoms and by the use of our improved modern methods of diagnosis, we can generally arrive at a correct conclusion. If the disease is limited to one kidney, but one operation is to be considered—nephrectomy. Nephrotomy with drainage should be made simply as a palliative operation, and with the understanding that, as soon as the condition of the patient permits, a radical operation of nephrectomy should be made. Resection of the kidney is to be practically discarded from consideration. When both kidneys are involved, the treatment must be nephrotomy and drainage in cases in which there are large abscesses, and the fresh air and outdoor treatment of widespread, inoperable tuberculosis.

When operating for kidney tuberculosis, it is unnecessary to remove a diseased ureter, as it gradually recovers after the removal of the primary foci in the kidney proper. There are no more satisfactory results in the whole field of surgery than those which are obtained by an early nephrectomy in unilateral kidney tuberculosis.

PROSTATECTOMY FOR PROSTATIC HYPERTROPHY; WITH SPECIAL REFERENCE TO THE WORK DONE BY AMERICAN SURGEONS.—Guiteras (*N. Y. Med. Jour.*, Sept. 22, 1906).—After doing prostatectomy suprapubically, then going to the perineal route, the author has reverted to the suprapubic method. He says that suprapubic prostatectomy holds the same relation to the perineal operation that the abdominal hysterectomy does to the vaginal, in that it is a better surgical procedure; that the changing of the patient's position simplifies the different steps of the operation; and that in most cases suprapubic prostatectomy is preferable to the perineal on account of the ultimate operative results, the purpose for which the operation is performed. True, the mortality is higher in the suprapubic operation, but the results are better; and it is for the relief of the annoying symptoms and the dangerous complications that we operate.

The author gives in detail his method of operating, and attributes the improved results to better exposure of the gland, so that he can clearly see and show the steps of the operation.

VALUE OF THE INDIGO-CARMIN TEST AS AN AID IN THE DIAGNOSIS OF PARTIAL OR TOTAL URETERAL OCCLUSIONS.—Beer (*Annals of Surgery*, Oct., 1906).—The author speaks very highly of the indigo-carmin test as an aid to diagnosis of ureteral occlusions, used in conjunction with catheterization, citing several cases in which, though the ureters seemed by catheterization to be occluded, yet the indigo-carmin test showed them to be patent. After a study of these cases, the author comes to the following conclusions:

1. The cystoscopic study of the behavior of the ureteral orifices does not suffice for the diagnosis of the ureteral obstructions,

2. The cystoscopic study of the ureteral jet, especially if the urine is normal, is equally insufficient.

3. Ureteral catheterization *per se* cannot determine for us the presence of ureteral obstruction.

4. Similarly, the indigo-carmin test *per se* is as inadequate as ureteral catheterization *per se*, because, though the ureter be patent, indigo-carmin may not be excreted if the kidney under examination is diseased.

5. On the other hand, in ureteral catheterization conjoined with the indigo-carmin test, we have a very satisfactory method of determining the presence or absence of a ureteral obstruction as well as the degree of patency of the ureter, as shown in these cases.

CYSTOTOMY IN THE FEMALE.—Garceau (*Am. Jour. of Urology*, Sept., 1906).—The cases which are amenable to treatment by this operation are the following: Nervous cases, tubercular cases, cases of simple chronic cystitis without infection of the upper urinary passages, and cases of chronic cystitis with infection of the upper urinary passages. The author considers the subject, under the above headings, and illustrates, with reports of cases, the excellent results obtained by cystotomy in all of these conditions. He divides tuberculosis of the bladder into three classes—the incipient, the long standing and the incurable cases; in the latter of which the operation is simply palliative. He feels that in the others, under proper treatment, a cure should be expected. In the third class of cases of cystitis, the main question is when to operate. Chronic cystitis may spread to the upper passages, and it is well not to wait too long for fear this will take place. More virulent forms of the disease are frequently apt to invade the ureter, and chief among them stands gonorrheal inflammation. This form of inflammation gives rise to a great deal of suffering proceeding from the bladder, and one would be more apt to do a cystotomy in a case of this kind than in a cystitis from some other infection. When the disease is due to the colon bacillus, or some of the milder germs, it is best to give the patient the benefit of ordinary treatment before resorting to cystotomy. In cases of non-tuberculous cystitis with infection of the upper urinary passages, chief among which are ureteritis, stricture of the ureter with dilatation of the upper passages, pyelonephritis and calculous diseases of the kidney and ureter. The cure of the disease of the upper passages goes a great way toward eradicating a cystitis, but a great many patients will not submit to a serious kidney operation. A cystotomy relieves the patient from her suffering in a great measure, and if the opening is allowed to remain the kidney will, in some cases, at least, atrophy, and the fistula may be closed. The after-treatment consists in warm boric acid or silver nitrate irrigations, cauterization with silver nitrate stick, or curettage of ulcers as may be indicated. The author gives details of the technique of the operation, the complications which may arise and closure of the fistula.

PROSTATECTOMY IN TWO STAGES.—Chetwood (*Annals of Surgery*, Oct., 1906).—The excellent results obtained by performing prostatectomy in two stages, where the patient, either from age, retention or

chronic disease, is in such a state of debility that radical primary operation would be attended by great risk, are well illustrated by the author's report of a number of these cases. The primary drainage enables the patient to recuperate his powers of resistance and minimizes the dangers of secondary prostatectomy. The author lays particular stress upon the great value of formaldehyde gelatin as a local haemostatic.

TARATOMATA OF THE INGUINO-SCROTAL REGION.—Hilton (*Annals of Surgery*, Oct., 1906).—After a resumé of the literature, the author reports a case in which the tumor was attached by firm adhesions to the structures forming the inner boundary of the internal inguinal ring, extended along the inguinal canal and down into the scrotum, resembling very much a hernia. The cyst-wall was made up of epithelium, sudoriferous and sebaceous glands, and lined by fine lanugo hair. The content was a mealy mass of epidermal detritus and gland secretion.

GYNECOLOGY AND OBSTETRICS.

IN CHARGE OF

HUGO EHRENFEST, M. D.

THE CAESARIAN SECTIONS PERFORMED IN THE CLINIC OF PROFESSOR SCHAUTA IN VIENNA.—Neumann (*Arch. f. Gynaek.*, Bd. 79, H. 1).—The author presents a very exhaustive and interesting report of 180 Cæsarian sections, of which 175 have been performed on the living, 5 immediately after death. The results seem extremely gratifying. One hundred and sixty-one mothers made complete recovery, and only 16 died; 161 of the children were alive when their mothers were discharged from the hospital. In 141 cases the typical conservative Cæsarian section, after Saenger, was performed; in 15 also the uterus was extirpated after the method of Porro. In 18 cases operation was performed twice. The paper contains brief abstracts from the histories of all the 180 cases, and a thorough discussion of the indications and technique of the operation.

TUBERCULOSIS AND PREGNANCY.—Rosthorn (*Monatsch. f. Geb. u. Gyn.*, Bd. 23, H. 5).—Impregnation does not of necessity lead to an aggravation of a tuberculous process. Serious complications seem comparatively rarer if in patients who became pregnant the pulmonary process was stationary for years, who are in good general condition, and show but few local symptoms in the lungs; who for at least a year were free from fever and pulmonary hemorrhages. A favorable outcome may also be expected if the tuberculous process is well limited to the apex in a patient in good general condition who does not show any elevation of temperature. On the other hand, pregnancy must be looked upon as a dangerous complication in women who suffer from tuberculosis in an acute stage with persistent high temperature; in patients who offer insignificant local symptoms, but in whom an even slight elevation

of temperature does not promptly yield to appropriate treatment; furthermore, in patients in whom the middle or lower lobe is affected; in patients who suffer from a complicating disease of the heart, kidneys or intestines; in all cases of laryngeal tuberculosis, and finally in all patients with a bad family history. The attitude of the obstetrician must at first be entirely expectant. The therapeutic efforts are directed towards improvement of the tubercular manifestations. A premature interruption of the pregnancy can be considered in all cases in which the process is destructive and its progress accompanied by fever; in all patients who are suffering from a complicating disease, especially of tuberculosis of the larynx; finally in women who are losing weight in spite of a careful dietetic-hygienic therapy. Artificial abortion should be given preference over premature labor, the former, as a rule, requiring less dangerous manipulations. It is impossible to give any definite rules as to when pregnancy should be interrupted in tuberculous patients in individual cases. The obstetrician must make his decision after consultation with an experienced internist.

NECROSIS OF UTERINE MYOMATA.—Rouville and Martin (*Arch. General. de Medecine*, Aug., 1906; rev. *Jour. of Obstetr. and Gyn. of Brit. Emp.*, Oct., 1906).—The causes of a necrobiosis of uterine myomata are either torsion of a pedicle or sepsis. It could be expected that subserous myomas are especially liable to necrosis from torsion, but this occurs more frequently in the submucous variety. The degree of torsion in the former varies, according to different writers, from three-fourths of a turn to two and one-half turns, which almost always occur in the direction of the moving hands of a clock. Often the uterus participates in the torsion. On rare occasions this twisting has resulted in a complete spontaneous separation of the uterine body from the cervix; not infrequently the fibroid in this manner becomes detached from the uterus. The gangrene resulting in subserous myomas from twisting of the pedicle is aseptic, as opposed to that occurring in the submucous variety. Interstitial tumors are less affected, but less rarely are exposed to a septic gangrene. Ergot and electrolysis play an important role in the necrosis of fibroids, and pregnancy certainly seems to predispose these tumors to a necrobiotic process.

HOW LONG AFTER CONFINEMENT CAN PLASTIC OPERATION OF THE PERINEUM BE PERFORMED?—Sippel (*Zentralbl. f. Gynaek.*, No. 36, 1906).—This question has been answered differently by different authors. Thus, Fritsch, with a large number of writers, agrees on six weeks, Veit considering even three to four weeks enough. Sippel found that even three months after the confinement the vaginal mucosa may be still so tender and soft that the operation leads to hemorrhages which necessitate packing with gauze. He thinks a secondary plastic operation of the perineum should always be postponed until the mucosa again presents a normal appearance.

PEDIATRICS.

IN CHARGE OF

ALFRED FRIEDLANDER, M. D.

THE WEIGHTS OF THE VISCERA IN INFANCY AND CHILDHOOD.—Bovaird & Nicoll (*Archives of Pediatric*, Sept., 1906), recognizing the need of some definite knowledge of the weights of the viscera in infancy and childhood, have made a careful statistical study of 571 cases in which the weights at autopsy were recorded. The results of their work are presented in tabular form which do not lend themselves to abstract.

Special attention was paid to the question of the weight of the thymus glands. From this it would appear that the general accepted figure, namely, about twenty grammes in infancy, is incorrect. The general conclusions of the authors follow:

1. The study of the average weights of the viscera in infants and children up to the age of five years shows that there is a constant relation between the weights of the more important viscera, thus: (a) The weight of the liver will average seven times that of the heart. (b) The weight of the spleen will average one-tenth that of the liver. (c) The weight of the kidney will average one-ninth that of the liver.

2. That the weight of the thymus gland as commonly given is excessive, owing to the acceptance of pathological glands as the standard for normal conditions.

3. That the average weight of the thymus at autopsy is approximately 6.0 grams.

4. That there is no evidence of a growth of the thymus after birth under ordinary conditions, but that under special conditions the gland does grow and even hypertrophy enormously.

THE LENGTH OF IMMUNITY AFTER INJECTION OF DIPHTHERIA ANTITOXIN.—Sittler (*Jahrbuch f. Kinderheilk*, Sept., 1906).—It is well known that while the prophylactic injection of antitoxin protects in most cases against diphtheria, the protection is not absolute. Sittler, who has studied the subject carefully, comes to the following conclusions as the result of his practical experience:

1. The immunity given by the prophylactic injections lasts from three to five weeks, if the children are not too often exposed to diphtheria in the interval.

2. Unimmunized children are much more susceptible to diphtheria than the children who have been immunized.

3. Catarrhal affections of all kinds, and wounds of the mucous membranes, predispose to diphtheria and tend to shorten the period of immunity.

4. The length of the period of the immunization is not increased by using doses larger than 500 units.

5. Certain children show a greater predisposition to diphtheria than others. It is advisable to isolate these children as thoroughly as may be, so as to avoid the necessity for too frequent injection of antitoxin.

SODIUM CITRATE IN INFANT FEEDING.—Cotton (*Jour. A. M. A.*, Oct. 6, 1906), believes that sodium citrate is of much value in the feeding of infants through its inhibition of dense coagulation of cow's milk in the presence of an acid and rennin. He has found that infants will tolerate a larger proportion of the milk in the feeding mixture when citrated than of any other modification. His experience extends over 112 cases embracing nearly all conditions from simple dyspepsia to marasmus, and ranging in age from the newborn to adults who have suffered from milk dyspepsia. He uses an aqueous solution containing from one to five grains to the dram, and enough of this solution is added to the bottle immediately before feeding to represent one, two or even three grains of the citrate to each ounce of the milk in the feeding mixture, according to the requirements. The feeding mixture may consist of varying dilutions of milk with water or gruels, with the addition of cane or milk sugar, with or without cream. No alkalies are added to the sodium citrate used, it being a neutral salt.

A most noticeable feature in this method of feeding is the large proportion of milk in the feeding that the infant will tolerate without evidences of gastric disturbance, or the appearance of any considerable amount of undigested casein in the stools.

In no case has the author seen any harm resulting from the use of the citrate, although at times the period of use was quite prolonged. The author has also had made a series of experiments to test the physical behavior of citrated milk *in vitro*. As a result of these experiments, he has reached the following conclusions:

1. Sodium citrate in .25 per cent or more retards, and in high percentages will inhibit coagulation.
2. The presence of HCl hastens coagulation.
3. Diluting milk generally retards coagulation.
4. Gruels appear to have little or no effect in retarding coagulation when the citrate is used.
5. The coagula of citrated milk are softer, smoother and more jelly-like, or more flocculent, than those of milk not thus treated.

The author believes that the simplicity of this method furnishes an additional reason for its employment.

THE BACTERIA IN SCARLATINAL AND NORMAL THROATS.—In view of the interest attaching to the role of the streptococcus in the causation of scarlet fever, the investigations of Ruediger (*Journal A. M. A.*, Oct. 13, 1906) are very valuable.

Ruediger examined 154 cases, 51 normal throats, 75 cases of scarlet, 14 of measles, 5 of tonsillitis, 5 of pneumonia, and 4 pharyngitis. His conclusions follow:

Streptococcus pyogenes is constantly found in great abundance on the tonsils of patients suffering from tonsillitis and scarlet fever before the inflammation of the throat has subsided. These organisms rapidly decrease in numbers with the subsidence of the throat symptoms.

Streptococcus pyogenes cannot be considered a normal inhabitant of all healthy throats, although it was found in small numbers in 58 per cent. of the normal throats in this series.

Pneumococci of low virulence were found in 135 of this series of 154 throats.

A large group of organisms which lies between the typical streptococcus pyogenes and pneumococcus was found in all normal throats and in nearly all diseased throats. These organisms have very little virulence for rabbits, and, as they are found in great abundance in practically all throats, they appear to be normal inhabitants of the throat.

Streptococcus pyogenes from normal throats appears to have a slightly greater virulence for rabbits than these organisms from scarlatinal throats.

NEUROLOGY.

IN CHARGE OF

SIDNEY I. SCHWAB, M. D.

A STUDY OF THE METABOLISM IN A CASE OF MYASTHENIC PARALYSIS.—Kauffman (*Monat. f. Psychiatric u. Neurolgie*, No. 4, 1906).—In this paper an attempt is made, in the case of a typical myasthenia gravis, to discover if there exists a metabolic change of sufficient intensity to account for the symptoms. The author calls attention to the fact that, in the published autopsy protocols of the disease, too little care has been taken in the study of the internal organs, it being taken for granted that in the absence of organic changes in the central nervous system no other organ might be affected. The case here presented is a typical myasthenia in a man aged 43 years. A very careful study was first made of the urine, feces, blood, etc., and then the diet was regulated and with a given amount of units the residue in the feces and urine were estimated. The results of this study are more or less vague, as the author found a metabolic disturbance such as is commonly found in disease of the liver. Whether this points to the fact that the myasthenic symptoms depend upon disease of the liver in all instances, the author leaves to further metabolism studies of this kind. At any rate, the attempt must be looked upon as an advance in the study of the etiology of this disease.

A CASE OF AMYOTROPHIC LATERAL SCLEROSIS.—Puscario-Lambrior (*Revue Neurologique*, No. 17, 1906).—A carefully reported case in a man aged 40. The following are noted as of interest in the case: In point of etiology the most careful search failed to find any factor which might be brought into causal relation with the disease. Especially marked from a clinical point of view was the rapid course of the disease, and by the intensity of the spastic quality of the muscles in spite of the great degree of atrophy. The cause of death was the rapid development of the bulbar symptoms which were an early feature of the disease. From the pathological point of view there was a degeneration of the crossed pyramidal tract. The cells of the anterior horn showed the classic picture of degeneration, showing the greatest extent of change in the

cervical region. The hypoglossus nucleus and the vagus showed evidence of degeneration. The bulbar symptoms depended upon the change found here.

A CONTRIBUTION TO THE STUDY OF AMAUROTIC FAMILY IDIOCY.—Poynton, Parsons, Holmes (*Brain*, No. 114, 1906).—This is an interesting contribution to the literature of a somewhat rare disease. Two of the three cases here reported are accompanied by autopsy protocols. In two cases the eyes were examined microscopically so that the cause of the peculiar cherry red spot on the macula is now pretty well known. The red color is due to the chorio-capillaris which is visible through a tiny perforation in the retina in the center of the macula lutea and around this perforation the retina is thickened, this thickening setting off the color of the red background and thus by contrast making the central spot appear more prominent. The conclusions arrived at are as follows: (1) There is strong evidence that it is a primary disease of the nervous elements. (2) The affection is a primary cell disease. (3) The primary change is probably to be found in a disease of the interfibrillar protoplasm. It is not due to arrested development. It is not due to bacterial toxins. It is probably due to some inherent biochemical property of the protoplasm of the cells.

ON THE FREQUENCY WITH WHICH CERTAIN SIGNS AND SYMPTOMS OCCUR IN CASES OF DISSEMINATED SCLEROSIS BEFORE THE DEVELOPMENT OF SO-CALLED CARDINAL SIGNS.—Mackintosh (*Rev. Neurology and Psychiatry*, Sept., 1906).—This paper calls attention to the cases of multiple sclerosis which are not typical and do not present in the beginning the so-called classical signs. The author has a material of 110 cases including a series of 80 cases previously published in this journal. This material is sufficiently large in itself to warrant an analysis. The following points in the histories of the cases are selected upon which attention is directed: (1) Marked variability or remission of symptoms were found in 30 cases. (2) Parasthesia in 23 cases. (3) Arm affection, weak, shaky or tremulous, 12 cases. (4) Sphincter trouble apart from constipation, in twelve cases. (5) Amblyopia 14, diplopia 7, squint 2, vertigo 6, speech defect 3, and epileptiform attacks 2.

OPHTHALMOLOGY.

IN CHARGE OF

JOHN GREEN, JR., M. D.

THE BACTERICIDAL ACTION OF COMPOUNDS OF SILVER.—Marshall and Neave (*Brit. Med. Jour.*, Aug. 18, 1906).—The conclusions reached by Marshall and Neave, as a result of their inquiry into the bactericidal actions of the various silver compounds, organic and inorganic, are certainly surprising. The bactericidal effect was determined both on a mixed culture and on a pure culture of staphylococcus pyogenes aureus.

The antiseptic action of the various compounds was determined in two ways—(1) by observing the time taken by minced cooked beef to putrefy in presence of silver compounds of known strength; and (2) by inoculating an agar medium containing a definite quantity of the various silver compounds. Finally, Marshall and Neave carried out certain ingenious experiments for the purpose of determining the power of diffusion possessed by the different compounds.

The summary of the entire investigation is stated by the writers in the following words: "The experiments show that as regards bactericidal action the various silver compounds investigated fall into three groups: (1) Those which are powerfully bactericidal; (2) one—nargol—much less powerfully bactericidal; (3) two—argyrol and collargol—which possess practically no bactericidal action whatever. The first group includes silver nitrate, silver fluoride, actol, itrol, argentamine, argentol, albargin, argonin, ichthargan, largin, novargan and protargol. The bactericidal action of these in solutions containing the same percentage of combined silver is closely similar, and it is practically impossible to place them in any order of activity which would be true under all circumstances.

As argyrol and collargol are not bactericidal, it is evident that the amount of silver which a compound may contain is no criterion of its bactericidal power. Moreover, in view of the results obtained with argyrol, it seems impossible to attribute the good effects which many clinicians have obtained with it to its bactericidal action."

THE TREATMENT OF DETACHED RETINA.—Uthoff (*Monograph*, 1906).—During the past fifty years almost everything conceivable has been tried to induce the retina to resume its normal position. Advocates of medical and surgical treatment have vied with each other in this respect, and yet little or no advance has been made since v. Graefe's time. Of 422 cases treated by Uthoff, 4.25 per cent. recovered as the result of medicinal and surgical treatment, and precisely the same percentage healed spontaneously. The most successful plan of dealing with the condition is still one of "masterly inactivity" both on the part of the surgeon and patient. Uthoff advises that rest, etc., should be given a fair trial first, before any operation is thought of.

ON ANTIPYRIN-KERATITIS.—Inouye (*Klin. Monatsbl. f. Augenheilk.*, July-August, 1906).—Reference is made to a reported case in which antipyrin, taken internally, was responsible for an erythematous rash and the occurrence of corneal erosions. He then reports his own observation of a similar untoward event in a lady aged 48 years, whose eyes became very painful after a dose of 2 grams of antipyrin. The lids and mucous membranes of the mouth, tongue, vulva and anus were much swollen, and both corneæ showed numerous small marginal infiltrations; these together with the other symptoms soon disappeared.

COMBINED IRIDECTOMY AND SCLERECTOMY IN THE TREATMENT OF CHRONIC GLAUCOMA.—Lagrange (*Arch. d'Ophthalm.*, Aug., 1906).—Glaucoma consists essentially "of a dislocation of the equilibrium that

should exist between the secretion and the excretion of the intraocular fluid" (de Wecker). Every surgical intervention designed for the relief of glaucoma must necessarily act either by diminishing secretion or by facilitating excretion. Sympathectomy was utilized for the former purpose, while iridectomy and sclerotomy go upon the principle of hastening excretion. It has been generally recognized that the best results are to be obtained by the production of a pervious cicatrix, but hitherto no simple, certain and convenient way of obtaining this result has been devised. A cystoid scar implies a prolapse of the iris, a thing very generally regarded as undesirable. In the operation proposed, Lagrange believes he has devised a means of making safely a pervious cicatrix in the region of the canal of Schlemm without the least prolapse of the iris.

The steps of the operation are as follows: After the instillation of eserine, an incision is made by means of a narrow blade in the sclera parallel to the upper edge of the cornea at some little distance from the latter, freeing the filtration angle as exactly as possible. In making the section the blade is rotated so as to turn the cutting edge of the instrument a little back. In the result, therefore, the sclera is beveled. When the section has reached the conjunctiva the blade is turned definitely backwards for the purpose of cutting a large conjunctival flap. The flap of the mucous membrane being turned forward over the cornea, the next step is to resect by the aid of small-toothed forceps and well sharpened and strongly curved scissors a small piece of the sclera left attached to the cornea. Lastly, an iridectomy is made, a large piece of iris being removed in two stages up to the angle of the chamber. After healing, one sees beneath the transparent conjunctiva a narrow line representing the weakened portion of the sclera. Lagrange has operated on twenty patients and claims that in every instance the procedure outlined above has produced a cicatrix which allows of ready escape of the intraocular fluids.

LARYNGOLOGY AND OTOTOLOGY.

IN CHARGE OF

WILLIAM E. SAUER, M. D.

A NEW OPERATION FOR EXTREME CASES OF SEPTAL DEFLECTION, WITH PRESENTATION OF A SUCCESSFUL RESULT IN AN ADULT CASE.—Price-Brown (*Laryngoscope*, Sept., 1906).—After discussing the submucous operation and pointing out what he believes to be the dangers of this operation he describes his method. This consists of two longitudinal cuts from before backwards. These cuts are made obliquely from the convex side and are about a half inch apart, passing through both mucous membranes, the lower cut being just above the superior maxillary ridge. To remove the antero-posterior tension, a cross-cut is made converting the two straight lines into the figure H. The points to which he draws attention are, first, that as the curvature of the cartilage from above

downwards gives it a greater width than it could occupy if it were upright in its normal position, the two longitudinal cuts should be so managed as to remove two long slips of the septal cartilage, at the same time being made at an oblique angle, so that the cut edges may slide over each other; second, that the cross-cut of the H should be oblique, extending at right angles beyond both of the parallel incisions, cutting through both mucous membranes and the cartilage, so that in replacing the segments the posterior central segment of the septum will slide forward over its fellow, and the anterior one backwards. It matters little how these cuts are made if the principle upon which they are founded is carried out. The long strips of cartilage might be removed either by drill or swivel-saw, or knife, or ordinary saw of unusual thickness, or any improved instrument specially constructed for the purpose. The cross-cut can be made by either chisel or knife. The immediate result of the combined cuts, when made completely through both mucous membranes and cartilage, is to remove all tension, two rectangular flaps are made by the H incision, the basic blood supply of each being retained, and they can with ease be pressed into the normal position, their edges sliding over each other. The pieces are readily adjusted and retained in position by the use of the invaluable rubber splint, a single one on the convex side being the only one needed.

A NEW METHOD OF TREATING HAY FEVER.—Renault (*Revue hebdomadaire de laryngologie, d'otologie et de rhinologie*, July 21, 1906. *Rev. N. Y. Med. Jour.*, Sept. 22, 1906) reviews the methods of treating spasmodic coryza, which he considers to have an arthritic basis. In fourteen cases he had adopted the suggestion of Brindel, and had made interstitial injections of paraffin under the nasal mucous membrane. In all the cases it had brought about a complete cessation of the symptoms. In this affection, according to Brindel, there is excessive vasodilatation of the erectile tissue of the pituitary membrane, with more or less edema. The hydrorrhea then may be regarded not as glandular hypersecretion, but as really an escape of the serum of the blood through the meshes of congested mucosa. It is this view of the pathology which first led Brindel to institute his treatment. He sought by the injection of paraffin to interpose a mechanical obstacle to the flow of blood into the mucosa. The blood being thus retarded, enters the vessel under lower pressure than before, and in smaller quantity. In consequence, the osmosis ceases, and the hydrorrhea disappears. This ingenious procedure is indicated, according to Renault, only when the nasal mucous membrane is still retractile. It is contraindicated when there is degeneration and hypertrophy of the mucosa and when certain lesions are present in the nasal chambers, such as spurs, polypi, etc., which through reflex action may themselves explain the occurrence of the attacks of spasmodic coryza.

ON THE POLLANTIN THERAPY OF HAY FEVER.—Zarnikó (*Berliner Klinische Wochenschr.*, Sept. 10, 1906).—With every tube of pollantin sent out from the laboratories of the manufacturers there was enclosed a number of questions pertaining to the results, which were to be answered by the patients themselves and returned to the Institute of Hy-

giene at Hamburg. During the past year there were four hundred and ninety-two responses. These letters were turned over to Prof. Zarniko who found that two hundred and eighty-seven were from Europe and two hundred and five from America. In analyzing these reports they were classified under three headings: (1) Those in which a satisfactory result was obtained. (2) Those in which partial relief was obtained. (3) Those in which no effect was noticed. Of the 287 European cases 189, or 66 per cent., came under the first class; 78, or 27 per cent., under the second, and 20, or 7 per cent., under the third class. Of the 205 American cases 113, or 55.1 per cent., were in the first class; 35, or 17 per cent., in the second, and 57, or 27 per cent., in the third class. Summing up these gives a total of 61.3 per cent in which a satisfactory result was obtained, 23.1 per cent. in which partial relief was obtained and 15.1 per cent. of failures. Some of the failures are attributed to faulty application and others to errors in diagnosis.

CLINICAL EXPERIENCES WITH BIER'S ARTIFICIALLY INDUCED HYPEREMIA.—Isemer (*Archiv. fuer Ohrenheilkunde*, Band 69, heft 1 and 2).—After briefly reviewing the reports of Keppler, Heine, Hinsberg, Stenger and Fleishmann, and analyzing the results obtained in twelve cases of supuration of the middle ear treated by Bier's method in the clinic at Halle under Prof. Schwartz's directions, the author reached the following conclusions:

1. The treatment of otitis media by Bier's method of induced hyperemia is not free from danger owing to the fact that as treatment is limited to this procedure the proper moment for surgical interference may pass and the outcome be very unfavorable.

2. More experience will be required in order to determine for what cases this form of treatment is best suited and how long it may be safely continued.

3. This form of treatment seems to be especially dangerous in the so-called cases of diplococcus otitis.

4. Bier's method is absolutely contraindicated in cases of otitis media when there are intra-cranial complications present.

THE REMOVAL OF ADENOID VEGETATIONS THROUGH THE NASAL PASSAGES BY A NEW METHOD.—Freer (*Abs. Medical Record*, Oct. 6, 1906) finds objections to the various forms of curettes and ring knives now so generally employed. He claims that they do not afford clear and sufficient removal of the offending masses; if the latter are at all tough the blade is apt to slip over them. Moreover, the ramifications of the naso-pharyngeal cavity are such that no ring knife, or similarly constructed instrument, will reach them. Hence Freer prefers to operate through the nasal fossæ and has devised for this purpose a slender forceps with a smoothly rounded beak. It is of the general model originally devised by Ingals for the removal of bone in the nose. At first sight it would seem as if the instrument was too large to pass through the nose, but experience has shown that there is no difficulty in this respect. The author employs chloroform anesthesia combined with cocain in 10 per cent. solution and has no difficulty with this combination.

DERMATOLOGY AND SYPHILIS.

IN CHARGE OF

M. F. ENGMAN, M. D.

DERMATITIS EXFOLIATIVA.—Foster (*St. Paul Medical Journal*, Oct., 1906).—This interesting paper was read before the American Dermatological Association in Cleveland. It is a report of four cases of dermatitis exfoliativa neonatorum. The next is a group of cases similar to those described by Hebra as pityriasis rubra, which Foster includes under the general term of dermatitis exfoliativa. This group consists of three cases. The next is a series of five cases which the author calls acute idiopathic exfoliativa dermatitis. The author remarks that there have been recorded typical cases of each of these dermatoses, and where the individual case has remained typical throughout its course might seem that it was a distinct disease. On the other hand, from a careful study of the cases of which he had been able to find complete records, as well as of those he had seen, he was more inclined to believe that in the entire group it is but one disease which runs a different course in different individuals. The leading French, German and American dermatologists believe that there are at least three different diseases in the group, but their arguments to establish this view have not convinced the writer, he being rather inclined to adopt the English view of one disease. He remarks that the etiology and pathogenesis of this disease is not properly understood, and he wishes to include all the clinical types described under the one term, dermatitis exfoliativa. The treatment is entirely symptomatic. Prolonged hot baths and some mild antipyretic oil are the principal indications.

ALOPECIA CONGENITA.—Kingsbury (*J'l Cutaneous Diseases*, Sept., 1906).—The writer, after the study of some cases of this disease and also of the recorded literature, arrives at the following conclusions:

1. That cases are entirely too few and dissimilar to permit of permanent conclusions. He refers to published cases, for doubtless there are many instances of local and relative atrichia which are not reported.
2. Certain reported cases appear to indicate the presence of developmental anomalies of the deepest sort, such as involve the very elements which underlie the differences that subsist between races as the classification of the latter is based largely upon peculiarities of the hair and skin.
3. The frequent coincidence of anomalies of the hair, nails, teeth and skin, together with the hereditary characters of many cases, while not involving the questions of racial characters and atavism, points to deep-seated anomalies of certain tissues which have an intrauterine origin. They must depend in some way upon the pathology of the embryo, a subject which is but little understood. The fact that the epiblast is alone involved in these cases points to some affection of this layer during the early months of intrauterine life.
4. The microscopical findings are rather disappointing. Beyond show-

ing the possibility that in some cases the embryonic substratum of the hair follicles undergoes a complete and early arrest of development, the other observations simply denote that the natural evolution of the hair already under way may be arrested wholly or in part at various periods, by factors which are either unknown or which represent certain conditions of the epidermis, due in some cases to well-understood diseases.

5. On account of the great variability of individual cases, the question of diagnosis, prognosis and treatment must remain more or less obscure. The general diagnosis should be easy; it is only necessary to exclude types of acquired baldness, particularly the characteristic defluvium produced by x-radiation. But diagnosis of special types involving prognosis is much more difficult, and would be influenced by the family history, and, to some extent, by the results of microscopical examinations. There are a few classic cases in which not only the atrichia, but accompanying dental defects seem to have indicated only a retardation of normal involution. Hence it is not strange that writers of a score or more years ago, having but limited material to draw upon, should have given a favorable prognosis for these cases not unlike that of alopecia areata. And the very fact that cures did result at times seems to have led to the assumption of a neurotic origin. With the accumulation of material, however, the hopeless character of the majority of these cases is now generally recognized. But, bearing in mind the few recorded cases of cure, one need not regard this affection as absolutely hopeless, although there is no very satisfactory evidence that treatment of any sort has ever materially modified the outcome. Naturally therapeutic measures directed to an underlying general or local condition would be indicated.

DERMATOLOGY AS A FIELD FOR RESEARCH.—Hartzell (*Jl Cutaneous Diseases*, Sept., 1906).—This is an address by the president before the last meeting of the American Dermatological Association, and it is a subject so little touched upon in general addresses that the article is exceedingly interesting. The writer points out the opportunities for original research afforded by dermatology which have been neglected. He justly remarks that the profession at large is inclined to regard dermatology as a specialty which deals for the most part with trivial affections, and that the dermatologist is one who concerns himself chiefly with cosmetic matters. It is very probable that the dermatologist himself has narrowed his own field. He refers to a paper published a few years ago by a distinguished foreign dermatologist in which sixty pages were devoted to a discussion of the removal of superfluous hair by electrolysis. On account of the opportunity to obtain practically living material for microscopical study and to observe the progress of the skin affection from day to day, this field should be particularly fruitful in research. The cancer problem should receive especial attention by the dermatologist. The peculiar pathology of the circinate eruptions, antagonism, and the study of the local effects of drugs upon the skin, opsonins in relation to dermatology, the study of drug eruptions and known toxins upon the skin are some of the points suggested by the writer for future research.

MEDICAL LAW AND MEDICAL JURISPRUDENCE.

IN CHARGE OF

IRVIN V. BARTH, LL. B.

ACT REGULATING PRACTICE OF DENTISTRY NOT UNCONSTITUTIONAL AS GRANTING SPECIAL PRIVILEGES AND IMMUNITIES.—*Kettles vs. People (Supreme Court of Illinois, 1906)*, 77 N. E., 472.—Plaintiff in error was charged with violations of an act of the State of Illinois of 1905, entitled: "An Act to regulate the practice of dental surgery and dentistry in the State of Illinois, and to repeal an act therein named."

Several constitutional defenses were interposed. To the defense that the regulation of the practice of dentistry did not fall within the police power the court answered: "That legislation prescribing regulations for securing the admission of qualified persons to professions and callings demanding special skill is within the valid exercise of the police power of the state is not a mooted question, and that the practice of dental surgery requires special skill and training will not be denied by any one."

Attack was directed against Section 3 of the Act, which reads as follows:

"Application from a candidate who desires to secure a license from said board to practice dentistry or dental surgery in this state shall be accompanied by satisfactory proof that the applicant so applying for a license has been engaged in the actual, legal and lawful practice of dentistry or dental surgery in some other state or country for five consecutive years, just prior to application; or is a graduate of and has a diploma from the faculty of a reputable dental college, school or dental department of a reputable dental college, school or dental department of a reputable university; or is a graduate of and has a diploma from the faculty of a reputable medical college or medical department of a reputable university, and possesses the necessary qualifications prescribed by the board." It was contended that the section was unreasonable in that it made all residents of Illinois ineligible to take any examination before the state board who could not present a diploma from some dental or medical college or university, whereas, it made eligible the citizens of other states and countries to take such examination without having any diploma, and as such it was urged that the section conferred special privileges in contravention of the constitution. But the court held that "the provision allowing persons who had been engaged in the legal practice of dentistry for five consecutive years in another state or country to become applicants for permission to practice in this state is only a qualification prescribed by the legislature as a prerequisite to practice in this state, and one which they regarded as sufficient and no doubt equivalent to the qualification placed on the other applicants of producing a diploma of some reputable dental school or college."

Section 4 of the Act conferred upon the board a discretion to determine what is a reputable dental college or school by reference to the standard of educational requirements adopted by the board. This section, too, was upheld on the theory that it did not grant arbitrary powers.

Finally, the constitutionality of Section 5 was assailed because it exempted from the operation of the statute students performing dental operations under the supervision of competent instructors within a dental school, college or dental department of a university recognized by the board as reputable. The court likewise upheld that section, adding that, "the reason for exempting students in reputable schools from the penalty prescribed by the act is that the public good and welfare are sufficiently protected by the fact that the student is at all times under the care, supervision and control of competent instructors."

NOTE: The Missouri Act regulating the practice of dentistry, passed in 1905, is in most respects on all fours with the act considered in the principal case. As in the State of Illinois, so in Missouri, must the applicant possess certain important qualifications before he may be given the privileges of an examination for the license to practice dentistry. It is here provided: "Any and all persons who desire to begin the practice of dentistry in this state after the passage of this Act and who shall have a license from the dental board of another state, or who shall have received a diploma from the faculty of some reputable dental college, duly organized under the laws of this or any other state of the United States, shall have the right to apply to the dental board of this state for examination as to their proficiency; and all successful applicants shall be licensed and registered by said dental board * * * Said dental board shall be authorized to ascertain and determine what shall constitute a dental college or institution in good standing and repute," etc.

In striking contrast with the requirement that the applicant for examination for the dental certificate must have held a diploma from some reputable dental school, is the Act of 1901, in Missouri, regulating the practice of medicine and surgery. Here no diploma from any medical school is required—it is necessary only that the examination be passed. It is required that, "all persons appearing for examination shall make application in writing to the secretary of said board thirty days before the meeting. They shall furnish satisfactory evidence of their preliminary qualifications and shall also furnish evidence of good moral character." There can be little doubt of the soundness of the principal case in holding the provisions of the dental act constitutional. The same legal principles would apply to a medical practice act. The adoption of this higher standard of requirement in the practice of medicine and surgery is a matter of expediency and policy which should receive the attention of the profession.

Unlike the dental act, too, the act regulating the practice of medicine and surgery in Missouri makes no provision for practice by a student under the supervision of an instructor. By the medical practice act of 1883, it had been specifically provided that nothing in that act should "prohibit students from prescribing under the supervision of a preceptor, or to prohibit gratuitous services in cases of emergency." But when that act was repealed by the present act, passed in 1901, it was provided only that the repealing act should not be construed to "prohibit gratuitous service to and treatment of the afflicted." Whatever may be said as to the omission of the feature of the act protecting the student, it is to be re-

gretted that the act of 1901 failed to limit in terms the right of any one to give gratuitous service, to "cases of emergency."

ACTS REGULATING PRACTICE OF MEDICINE CONSTITUTIONAL.—*Spurgeon vs. Rhodes* (*Supreme Court of Indiana*, 1906), 78 N. E., 228.—The court here held: "Statutes prescribing the qualifications of practitioners of medicine and surgery, and otherwise regulating the practice of those professions have been uniformly upheld by the courts as a valid exercise of the police power of the states, infringing no provisions of either federal or state constitutions. Statutes containing a provision like the one in question here, authorizing the board to revoke a license where the holder has been guilty of a felony or of gross immorality, have been held not to violate any provision of the federal or state constitutions. And it has been held that the granting or refusing to grant a license to practice medicine, or the revocation thereof by the board, is not the exercise of judicial power."

NOTE: These doctrines were announced in Missouri in the recent cases of *State vs. Davis* and *State ex rel. MacAnally vs. Goodier*, which were reviewed in the July number of this journal at pages 624-5, and in the April number at pages 385-9, respectively.

The grounds for revocation of license in Missouri are expressed to be for "unprofessional or dishonorable conduct." And it is further provided: "Habitual drunkenness or excessive use of narcotics or producing criminal abortion shall be deemed unprofessional and dishonorable conduct within the meaning of this section, but this specification is not intended to exclude all other acts for which licenses may be revoked."

BOOK REVIEWS.

A TEXT BOOK OF THE DISEASES OF THE EAR, NOSE AND PHARYNX. By D. B. St. John Roosa, M. D., LL. D., Professor of Diseases of the Eye and Ear in the New York Post-Graduate Medical School and Hospital, etc., and Beaman Douglass, M. D., Professor of the Nose and Throat in the New York Post-Graduate School and Hospital, etc. Pp. 621; 108 Figures. New York: The Macmillan Co. Price \$3.00.

The main object in this work seems to have been to show the intimate relationship between the diseases of the ear to those of the nose and pharynx. In this respect the work differs from the others of its class. Aside from this, there are no distinctive features.

The first part of the work is devoted to examination of aural cases and contains some good points, but the tuning-fork tests are but very briefly considered. The C2 fork is the only one mentioned.

The anatomy and diseases of the middle ear with the diseases of the nose and pharynx, which may cause aural affections, are next described. The Ash operation for correction of deflections of the septum is described in detail, but, strange to say, the submucous resection, which has practically taken the place of all others, has not been mentioned.

In discussing the adenoid operation for adenoids, the statement is made that this operation should not be done without complete narcosis unless there is some contraindication for its use. In recent years the trend of opinion has been against general anesthesia.

The intracranial complications of the suppurative diseases of the ear are very briefly considered. The last chapter is devoted to deaf-mutism and mechanical assistance to the hearing, but nothing new is offered.

UEBER AETIOLOGIE UND THERAPIE DES ACUTEN GELENKRHEUMATISMUS. Von Dr. Hans Klatt. Wuerzburger Abhandlungen, VI. Band. 10 Heft. Wuerzburg: A. Stuber's Verlag. 1906.

A brief but interesting discussion of the various theories concerning the etiology of acute articular rheumatism, followed by an account of therapeutic methods. The writer favors the usual salicylate medication while conscious of its failure in obviating heart complications, but looks with especial hope for a confirmation of Menzer's remarkable results with his antistreptococcus serum.

PHYSIKALISCHE THERAPIE IN EINZELDARSTELLUNGEN. Herausgegeben von Dr. J. Marcuse und Doz. Dr. A. Strasser. Stuttgart: Verlag von Ferdinand Enke. 1906.

This is a series of monographs, each by an authority in his special department, which in successive issues is to cover the entire field of physical therapeutics. The four numbers that have been sent in for review consist of an introductory discussion of the physiology of hydro and thermotherapy by Winternitz, a sketch of the physiology and technique of massage by Bum, of electrotherapie by Frankenhaeuser, and of balneotherapy by Glax. The further numbers of the series will be looked for with interest.

CLINICAL DIAGNOSIS: A TEXT BOOK OF CLINICAL MICROSCOPY AND CLINICAL CHEMISTRY. By Charles Phillips Emerson, A. B., M. D. 8vo.; pp. 641. J. B. Lippincott Co. 1906. Phila. and London.

The author was for some years instructor in clinical chemistry and microscopy at Johns Hopkins. His book thus embodies the results of prolonged experience in classroom work and is full of useful suggestions which help the

beginner over difficult places in laboratory technique. It is, above all, a book for students, and yet more advanced workers will find, in brief, most of the methods which interest them. The subject is handled always from the clinical, not from the laboratory, points of view. As the writer well puts it: "The clinical chemist must be, first, a good clinician, and, second, a chemist; he should remember that even from the laboratory point of view his stethoscope is of more importance than his microscope, his percussion finger than his whole outfit of chemical apparatus." The book can be unreservedly recommended.

INTERNATIONALES CENTRALBLATT FÜR DIE GESAMTE TUBERCULOSE. Literatur, herausgegeben von Dr. Ludolph Brauer, Prof. Dr. Oskar de la Camp, Dr. G. Schroeder. Wuerzburg: A. Stuber's Verlag. 1906.

Two numbers of this new journal have appeared. It consists primarily of abstracts of articles that have appeared on tuberculosis, or allied subjects, all over the world. So far as we know, this is the first attempt at a Centralblatt in this important and rapidly growing field. As is only natural, the abstracts cover the German, less completely the French activity in this field—English and American work so far being nearly entirely ignored. This very feature, however, should make it the more useful to us who need the aid of such a summary, more to keep us in touch with foreign than with domestic publications.

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ORIGINAL ARTICLES.

A CRITICAL ANALYSIS OF THE EXPERT TESTIMONY IN THE "JACK THE STABBER" CASE.

BY SIDNEY I. SCHWAB, M. D., St. Louis.

In view of the fact that expert testimony in medical cases has become of late the subject of renewed inquiry, it has seemed worth while to submit the evidence from a recent trial to a critical analysis in order to determine, in as tangible a way as possible, the chief faults of the present method as exhibited in an actual case. This somewhat novel method of approach presents a number of difficulties, the most apparent of which is, that the evidence submitted for criticism must of necessity be abstracted from the official record, and the more or less fragmentary nature of these exhibits might well raise the question of fairness. An attempt will be made, however, to use only such parts of the testimony as are necessary to the question at issue and a sufficiently complete excerpt will be given, to avoid if possible the charge of unfairness.

That expert testimony as given in the courts today on questions of medical fact, is based upon a wrong attitude towards the end and aim of justice, is no longer denied nor is there much weighty opinion against the view that a radical change is necessary. A system must be devised and largely followed that results in establishing the medical expert in his proper place, which is that of an interpretative officer in the service of the court. He should have no interest as such nor concern in the two sides of the case, and should hold aloof from the legal aspect of the question as much as possible.

An expert is one who may reasonably be supposed to have that kind of knowledge of a subject not within the reach of the average of his colleagues and to have a more than average ability in presenting this knowledge in such a form as to come within the understanding of the average jury. His one reason for appearing in a court of law at all, is to place this knowledge at the service of the judge who presides at the trial in which the question is raised. This may be regarded as an ideal qualification and beyond the reach of the present system, and it probably is; but there is nothing to prevent a striving for the betterment of the system

with this, or a better ideal in view. In order to show the absurdity of the present system, the following analysis of the expert testimony in a recent case is given with the idea of contrasting in one and the same case, two methods of obtaining and presenting expert testimony. On one side it was possible to present a group of opinions obtained in the service of the court; on the other there was a body of opinion that was admittedly prejudiced from the start. In other words, one set of opinions was simply an attempt to strengthen a defense argument and the other was simply on the question itself uninfluenced by either the prosecution or the defense. That the latter was used as the State's position was simply a matter of coincidence and has nothing to do with the principle involved.

The transcript of evidence was obtained from the official court stenographer and was especially made for the purposes of this paper. Its accuracy therefore can not be questioned. The names of the experts will not be given, but they will be designated by letters. This is done with the obvious intention of avoiding the charge of personal criticism which lies far from the purpose of this paper. It will be necessary to give the story of the crime and the charge against the criminal and likewise to present the opinion of the Commission on Insanity and to describe its function in this case.

The Commission on Insanity of the City Jail whose function it was to report to the Circuit Attorney's office the results of its examination into the mental condition of the prisoner, has been in existence for only a short time. It is composed of three neurologists who volunteered their services to the criminal courts of St. Louis for the purpose of deciding questions of mental responsibility in such prisoners committed to the City Jail in whom such questions might arise. The jail physician by virtue of his office is a member of this Commission. The Commission acts either at the request of the Circuit Attorney's office, or of the judges sitting in the criminal division of the circuit courts. Its opinion is given in writing before the trial takes place and in some instances before the prisoner is arraigned. In no sense is its opinion to be taken as necessarily the State's position. The Commission agrees to hold itself in readiness, however, to express its opinion in court when required, as its formal opinion in writing has no place as evidence. The members therefore are asked to submit to the usual cross-examination as practiced in the courts. In this way it would sometimes appear as if the Commission were a part of the State's system of prosecution when such is not the case at all.

The crime as well as the criminal excited a good deal of attention on account of the notoriety which was given them by the newspapers. The readiness with which medical opinions concerning the mental condition of the prisoner could be obtained and printed was a surprising feature

of the case from the start. Considering the obvious difficulties which the case presented from the psychiatric point of view this readiness to express opinions was somewhat remarkable. In fact, one of the physicians who afterwards became very active as a defense expert was willing to diagnose the case and outline a scheme for his defense long before the trial took place and long before he had an opportunity for examining the prisoner. A word might here be said about this feature of criminal cases which become objects of public interest.

It is reasonable to assume that there must be some purpose behind this free expression in the public press of an expert's views on the mental condition of a prisoner before the trial takes place. The most common motive is that of a desire for the advertising which naturally follows a newspaper interview. The wish to influence public opinion might be conceived of as another and as little worthy a motive. The latter is not by any means infrequent. Any reader of a newspaper is potentially a juror and it might be worth while to create an opinion in the mind of this or that individual on the chance that he might be in a position to render judgment in the case. It will be readily admitted therefore that the first requisite of an expert is that he must preserve absolute silence concerning his opinion in respect to the question upon which he will be asked to testify. This silence of course relates only to the expression in newspapers. The relation between physician and patient is commonly respected by the law, and it is only in exceptional cases that this relation is disturbed. An expert in the examination of a case stands in the relation of patient and physician, and he should be held strictly to this position except in the court-room, where for obvious reasons this relation is exempted. An insistence of this would have prevented much of the unseemly publicity given to the medical aspect of this case.

The crime concerned the peculiar actions of a young man, twenty years old, who ran amuck in the down-town streets of St. Louis and wounded several women, inflicting flesh wounds in the hip and thigh. No serious results to the women through the stabbing came about. After a certain time the man was arrested and placed on trial for felonious wounding. The case was tried before Judge Matt. C. Reynolds in the Circuit Court, on April 19, 1906.

The Commission on Insanity after a careful examination and due consideration of the importance of the case, especially from the point of view of unprejudiced testimony, reported in writing to the Circuit Attorney's office as follows:

"The following is our opinion in regard to Lawrence Brady, a prisoner in the City Jail charged with felonious wounding: We find that John Lawrence Brady shows no evidence of insanity at the present time. He is to be considered as mentally responsible within the meaning of the

law, and he is sufficiently intelligent to undergo trial for the offence he has committed.

"Owing to the fact that his crime has no apparent motive we suggest the following in explanation:

"The crime may have been the result of one or of a combination of these four conditions: 1. Sexual perversion. 2. Imperative act. 3. Epilepsy. 4. Alcoholic temporary excitement.

"For the first there is not the necessary evidence. The second seems to us insufficiently proven by the facts obtained. There is absolutely no data upon which to base the third. The fourth either alone or as a complicating factor in the second opens the possibility of a reasonable explanation. We suggest therefore then that John Lawrence Brady be tried as an individual mentally responsible and that the possibility of alcohol being the exciting factor be left to be determined by the facts as elicited in the trial of the case."

The necessity of finding an abnormal state mentally was the task of the experts employed by the defense, for if they could not discover any mental trouble the theory of the defendant's lawyers fell to the ground. It can be seen that very early in the case the legal aspect overshadowed the medical point of view, although the medical question was by far the more important. A diagnosis was first to be made, then the prisoner fitted to it and the defense built up afterwards. As a result the prisoner, Brady, was no longer to be considered a subject for careful medical inquiry, but an object of legal defense, the first requirement of which was the discovery of some definite mental disease.

If this method of determining the status of the prisoner be contrasted with that used by the Commission on Insanity it will be readily seen how much more secure they were in their effort at arriving at a conclusion. They were under no necessity to discover anything one way or the other. They had no relation with either the prosecution or defense. They knew and took cognizance only of the fact that this individual had committed a crime and that this question was to be answered: Was his deed the result of an abnormal state of mind which could be determined by the usual means at the service of medical inquiry? If this were the case and the law recognized that he was not to be held responsible for the logical results of his crime, then he would be declared insane and sent to some institution to protect society from further danger resulting from his abnormal impulses. If he were found to be sane, then he would be tried for his crime as an ordinary criminal. In more than this the Commission was not concerned. As a matter of fact, they acted towards the prisoner much the same as any one of them would to a private patient in the sense that the important thing was to find out what was the nature of his disease.

One of the experts for the defense, designated as Dr. A., in his open-

ing replies to the questions of the attorney for the defense, indicated clearly the nature of the data that would be relied upon for the proof of insanity. They proposed to establish proofs of physical degeneracy in this man and to argue from it that some abnormal mental state was necessarily present. He found, for instance, that the prisoner was under weight; that he had a small facial angle; that the ear was without lobes, contained a darwinian tubercle, summing up his findings in what he termed morbid degeneration. The following questions by the defendant's attorney, and the expert's answer will illustrate the method of arriving at the diagnosis of insanity:

Q. Now, from your examination of the defendant and what you found, and what you have testified to, what do you say as to his mental condition?
A. Well, from that, all we can tell is that he is below the normal standard nervously, want of equilibrium of the nervous system.

The witness was further asked whether from this data he would be able to state the mental condition in regard to responsibility on the 22d of January, the day that the assault was committed. It was ruled by the court that the question of responsibility must be established by the jury and not by the expert, whose sole duty in this connection was the determination of sanity or insanity. The witness asked whether he would be allowed to take the crime into consideration in his answer. The court ruled that he could not. The witness then very rightly said he was unable to answer this question.

From the medical point of view this ruling needs some comment. It illustrates very well how far from the real question an expert's opinion is allowed to drift, in order that the rules of evidence, or whatever they are called, might not be interfered with. It illustrates likewise, how necessary it is for the lawyer and the physician to develop a common ground upon which such questions might be threshed out so that justice might result. It is obviously ridiculous to exclude from an expert's body of data, just the act upon which the decision must in a large measure rest, and just the act for which the defendant is brought into court and for which the plea of insanity is brought. This sort of thing has little to do with medical expert testimony as a means of arriving at the truth. It is a legal procedure for the purpose of building up a structure of legal defense the strength of which depends upon the physician's acceptance of the legal necessity.

The expert very rightly declined to answer the question unless he could connect it with some act that was presumably insane. The act in this instance was the original cause of the whole inquiry. That the act was admitted to be a fact apparently made little difference. As far as the testimony had gone there was obviously a tendency to divorce the question of insanity from that of irresponsibility. The former being a question to be largely determined by the experts and the latter being left

for the jury to decide. To one interested in seeing the whole truth evolved from the complexity into which it had been allowed to sink, this decision seemed to be a further obstacle needlessly thrown in the way of obtaining it. At the last analysis it is the jury which determines both points, and one being established the other necessarily follows. To the mind of the expert such a differentiation is impossible.

At this point the hypothetical question was put. This maneuver seems to be out of place in a modern court of law. It is a device apparently designed for the purpose of putting in a categorical form such facts as were brought out in the trial and assumed to be true, to which an answer might be given which would have no necessary bearing upon the individual who is being tried. If there is a single method that might be thought of to confuse the minds of the jury and puzzle the judgment of the experts the hypothetical question is easily the most formidable. As framed in this case it was a disconnected, illogical grouping of facts obtained in the examination of the various witnesses put together in order to enable the expert to answer yes to the question of insanity. The question in full is as follows:

"Now, I will ask you this, doctor: Assume that a young man about twenty-two years old, whose father for a period of over twenty years had manifested monthly an extreme passion toward the mother of the subject, beating her and frequently driving her from her home during the period she was pregnant with the subject; who, when the subject was six months old, hit said subject in the face with his fist; who, when said subject was nine or ten years old, hit said subject a violent blow on the ear, causing thereby blood to flow from said ear, which lasted for a period of about two weeks; who again, when said subject was about twelve or fourteen years of age, struck said subject a violent blow in the ear; that when said subject was about sixteen years old stripped him naked and beat him violently with a horse-whip, resulting in said subject being sick with bladder trouble for a period of about a month and rendered unconscious at the time, the father quarreling frequently with said son, resulting in said son having to leave home; that said father was ultimately fined for striking his wife; said father frequently quarreling with his daughters, throwing on one occasion a cup of coffee at one of them, or a cup of tea. Assume that the party when twenty-five years old was charged with assaulting with a knife a woman fifty-six years old, in the city of St. Louis, was placed on trial for assault to do great bodily harm; what do you say as to the sanity or insanity of that assumed hypothetical subject, together with your examination of this defendant; would you say whether he was sane or insane?"

To this the expert for the defense, Dr. A., made the unqualified answer that the defendant, or the hypothetical defendant, was insane.

If the experts who answered this question in the positive held a logical

and consistent position, then their diagnosis of this man's insanity was made upon the basis of the facts stated in this question because one of them, as has just been seen, refused to answer the question on the facts that were obtained in the physical and mental examination of the defendant. The new body of data then is contained in the hypothetical question. Now it is seen at a glance that the hypothetical question has absolutely no medical value whatever. It assumes that because a father has acted insanelly, let us admit for the sake of argument, then the offspring of this father must of necessity be insane. Consequently, any act that a son of such a father does, which is not entirely explained by the motives present for such an act, is necessarily an insane act. As a result the individual is insane from the physician's point of view and irresponsible from the point of view of the jury.

The point of the influence of alcohol, for example, is not touched upon at all, and for the very evident reason that alcoholic excess is no excuse for a crime of that nature. This point is worth considering as showing that the question was not framed to include all the important points from the medical point of view, but rather to exclude such important data which might interfere with the theory of defense as worked out by the defendant's lawyer.

Assuming the good faith of the expert in question, his answer simply strengthens the assertion that as soon as an expert becomes partisan, at that moment his regard for exactness of medical statement and the careful collection of data so essential in his daily work, disappear and his one idea apparently is to satisfy and strengthen a legal argument. He becomes in this way not an agent of the court nor has he much to do with the question of justice, but he is a lawyer's instrument and he is used as such.

A curious phase of this matter is illustrated by the answer given by this same expert to the question of curability of this mental condition. The question was as follows: Then I understand you to say that in your opinion the defendant with proper treatment might be ultimately cured? A. Might be; yes, sir. It is questionable whether off the stand and in the quiet of his consulting room, the expert would have been willing to offer to cure a degeneracy so marked as was supposed to have been found in this case. To do this it would be necessary to give electricity and bromide to many generations of the prisoner's forefathers. This simply shows that an expert who in the beginning examines his case from the ex parte standpoint will have to live up to the diagnosis so formed, throughout his testimony. It is not to be understood that there is any necessarily evil intention in a testimony so advanced; it is simply the natural consequence of the one-sided attitude which a medical diagnosis leads one to, if that diagnosis is not founded upon the free establishment of data and the logical reasoning from them. The prosecuting attorney

now added his hypothetical question to the one already advanced, further complicating the whole business:

Q. Now, doctor, taking into consideration in your answer to this question what you found in the examination that you made, and taking into consideration all the facts stated by Mr. Porter, in the hypothetical question which he put to you, and in addition to that if the defendant in this case, who is twenty-two years of age, had worked for some two years at Granite City in a stamping mill, in a responsible position and following that by working at the cooper's trade in a responsible position, and then following that for three years as checker in Priester's restaurant here in the city of St. Louis, and then following that by immediately going over to Specht's restaurant and working there as checker, a responsible position, on and up to the afternoon of the 22d of January, the date of the commission of this offense, and then about six o'clock or a little after in the evening, he runs against Martha Young and jabs her in the fleshy part of the hip or thigh with a knife and immediately flees from that place and is caught about a block distant away and is accused of taking her pocketbook, which he denies, and denies that he had a knife, and, furthermore, is found at that time to have been drinking intoxicants, what would you say was the condition of that man as to his sanity at that time? And then in addition to that question, say that persons who have been associated with the defendant during all of his life, some of them going to school with him, commencing with his birth, practically, on and up to the time of the commission of this offense, never noticed anything unnatural, saw him pass and repass as other boys and was always peaceable and quiet. Now, in addition to what I stated awhile ago, what would you say was his condition on the evening of the 22d of January?

A. I think he was insane.

The unqualified, positive answer to this second hypothetical question can only mean that the same kind of mental tyranny which the legal aspect of the case had exercised from the beginning was active and caused automatically, so to speak, a given answer to a series of questions. The new facts as advanced in the second hypothetical question did not alter the expert's point of view in the least, though it was apparent to any one that so unqualified an answer was not justified by the facts in the case, not justified, that is, from the medical standpoint.

The next expert for the defense, Dr. B., answered the two hypothetical questions even more positively. He declared the defendant to be insane, curable or not, he would not say, and made a diagnosis of imperative insanity. Leaving aside for the moment the question of the justification of the diagnosis and whether such a thing as imperative insanity has any place in the classification of insanity, the injustice of this designation must be plain. The law in this State does not recognize the validity of an imperative act as an excuse for crime, but of course does acknowledge

that insanity is a justifiable plea. In this diagnosis the juror is expected to determine just how little of imperative act and just how much of insanity is contained in this phrase. An imperative act is found in a variety of neuroses and does not by any means determine the insanity of the individual who is a victim of it. Furthermore, an imperative act is largely a conscious act in which the individual is perfectly aware of the imperative nature of the impulse and frequently struggles against it. There is generally a feeling of discomfort, mental and physical, which the patient is aware of and which produces in him the feeling of something foreign and strange. No trace of this sort of thing was brought out in the examination of the patient, and it was certainly not mentioned in the testimony of the two physicians for the defense. The only explanation that can be suggested in this use of the phrase, imperative insanity, is that it was used as a device to strengthen the theory of defense and to create the impression on the part of the jury that the man was insane and the deed committed while he was in that condition. In the meaning of the term as put forth by the expert, Dr. B., every act committed in a state of insanity would therefore be an imperative act and all forms of insanity, by the same kind of reasoning, are imperative insanities. This same expert on the cross-examination further attempted to explain the term he had used in his first examination by declaring the act to have been an impulsive act, an uncontrollable impulse. He further elaborated as follows: "We would have to say an uncontrollable insane impulse. But we understand an uncontrollable impulse in nervous diseases to mean insanity, and in order to be understood, I would have to say an uncontrollable insane impulse." A further analysis of this remarkable phrase is unnecessary other than that to point out its evident prolixity. Pressed further in the cross-examination as to the relation of this form of insanity to epilepsy, the expert was not willing to say that the patient was suffering from an epileptic insanity, but left the jury in the position of being unable to determine the relation of epilepsy to the disease in question. If the judge had so instructed them in regard to the well-known immunity which a criminal, the subject of epilepsy, would enjoy, they would be in no position to decide from the testimony where the truth would lie. If the expert has any office to fill, it is certainly that of making clear to the jury the facts of the medical side of the case. The end and aim of this sort of testimony seems to be to confuse the jury and to bolster up a theory of defense presented by an attorney who by the very fact that he is an attorney for one side or the other must be partisan. It is certainly an anomalous position that needs no further comment which places the physician in so unscientific and unmedical attitude.

The experts for the state who by virtue of their semi-official connection as members of the Commission on Insanity were placed in a position where their sole task was to present in as simple a manner as pos-

sible their findings in the case. That they appeared before the jury as the State's experts and were used to refute testimony of the experts for the defense was a necessity which, though present in this particular case, had no effect whatever on the expression of their opinions. They had no interest in the case beyond this. Inasmuch as their opinion had been made up long before the theory of defense was known and without any consultation with the legal side at all, it was a matter of indifference which side made use of them or how much in favor of one side or the other their testimony might tend.

The State expert, Dr. C., refused to substantiate the diagnosis of the defendant's expert in any particular, denying the existence of a great degree of degeneration in the prisoner. The ground taken was that such abnormalities as were present were so commonly found that in this case they could have no special weight. The position of this expert was well taken, as it is an undeniable fact that signs of degeneracy by themselves no longer excite the respect that they once did. If they are present in any marked degree they probably have a certain confirmatory value. Beyond this they have none. Certainly a diagnosis based upon their presence alone, or a diagnosis which has its starting place from them, has no special strength. To the hypothetical question of the defendant's lawyer the expert, Dr. C., declined to answer, saying that he could not swear that the man was either sane or insane. The correctness of this position is unassailable. From such a hodgepodge of ill-related facts, inconsequently arranged and put together solely for the purpose of proving a theory of defense, no physician is entitled to draw any conclusion whatever. In this connection, it is of interest to quote the statement of the judge, which was made in regard to an objection on the part of one of the attorneys. He said that "the value of the testimony of any expert depends upon the care with which he has made an examination of the subject, as well as the truth and accuracy of the facts upon which it is predicated, and if there is any fact upon which it is predicated that is untrue, the opinion is not worth anything. That is true of all expert testimony not only in the medical profession, but in any other." If it were added to this that it is necessary that the expert should be absolutely unbiased and that he should not be held to any predetermined theory, this would approach very near to the ideal of an expert's position.

The second expert for the state, Dr. D., declined to answer the hypothetical question of the defense, saying that he could not determine from the data contained in it whether such an individual was sane or not. He, however, was able to say that from his examination of the prisoner there was no evidence of insanity. The judge then added the following in explanation, apparently with the idea of rendering the question capable of a proper interpretation:

"Take the hypothetical question as being the life of this defendant and his father and his mother and his family, and then take your examination of this man and the facts as you elicited them from him from the mental examination, what would you say?" A. "I could not answer that, your honor."

The ground for this expert's refusal to answer this question should be apparent, especially to every physician who believes that a careful examination of a patient is necessary to a just opinion in regard to the case. Inasmuch as in the hypothetical question, the necessary data were not included, he was justified in the position he took. Certainly no one in the practice of his profession is required to make a diagnosis of insanity or sanity unless he is satisfied that all the facts that are obtainable are at his disposal. That they were not present in the hypothetical question as put is not open to argument. There is no reason particularly why a physician in a court of law should suddenly depart from the methods of training and of careful study that he is accustomed to exercise in other phases of his work. There is no reason why a legal necessity or custom, or whatever it is, should make him say things on the witness stand that he would be ashamed of saying before a medical society, for example. The laws or rules of evidence have their proper place and are of great value, but an expert on the stand is no less a physician on questions of medicine there than in his office or hospital or clinic.

A hypothetical question involving medical opinion should be framed in such a manner that the medical point of view is never lost sight of, and until such a state of things is well recognized, the refusal of an expert to answer them should be sustained. It is only by the constant repetition of this attitude that reform will come about. The prosecution now added their hypothetical question to the one of the defense, thus complicating the situation. To this the expert added: "The addition that you made makes the evidence in respect to his sanity much stronger." The court asked what would you say, sane or insane? Answer: "I can not answer that, your honor, because there are evident contradictions in the question and there is not data enough concerning the things that I would have to go upon. The court: What do you mean by contradictions? You are given the history of this man and, assuming that the facts stated in the hypothetical question are true, and also assuming that the statements of fact contained in the question put by the counsel are true—coupling that with your own examination as being true, what would you say as to the final result, in your opinion? A. I am afraid that I could not conscientiously answer that.

This ended the expert part of the trial. The verdict returned by the jury was in accordance with the state's assumption that the man was sane. The defendant was convicted on several counts and sent to the workhouse to finish his sentence.

It is questionable if the expert testimony in this case had any especial weight with the jury one way or another. When the experts were as far apart as was the case in this trial, the jury is inclined to disregard their testimony altogether. So far as this trial is concerned, the medical testimony which ought to have been of the greatest weight, failed of its purpose, and the fault was chiefly in the method by which it was obtained and presented, and not so much with the experts who were active in the case.

As was stated in the introduction to this paper, the attempt at a critical analysis of the expert testimony in the Jack the Stabber case was undertaken with the sole purpose of demonstrating the confusion resulting from the methods now in vogue in the courts, in respect to obtaining and applying expert testimony. It might be stated again that no personal criticism of the various experts was intended. That a controversial element is apparent, is due to the method of exposition used and not to any desire to take an advantage which the unopposed position of the writer gives him.

The main points of the criticism advanced in this paper may be stated as follows: 1. The custom of using expert testimony as a partisan argument. 2. The use of a hypothetical question to sum up the facts obtained in the evidence in the case and the use of this question by the defense and the prosecution each in his own way; one suppressing and the other adding or emphasizing facts in accordance with a preconceived position. 3. The effect of this in preventing the experts from giving an absolutely unbiased opinion definitely medical in every phase.

It is probably true that the ideal method, which in this instance is the method of common sense, will not be reached for a long time. The chief obstacle toward accomplishing this end is the opposition which the body of practicing lawyers would bring to bear. They would see in it an attempt at infringement of their prerogative which legal custom has permitted. This privilege consists in the unquestioned right of an attorney to use any means sanctioned by legal usage to strengthen his client's case before the jury which tries him. It is difficult to see a way out of this unless there be given a choice of methods in each case with the right of refusing to take the position which a body of unprejudiced experts might advance. This might be the first step in the education of the courts toward the more just way. In criminal cases where the State's position is always assumed to be that of an unprejudiced party, whose sole duty is to get at the truth, the defense could with perfect safety to their client, accept its ruling in questions such as were present in this trial, for example. A commission of experts therefore, acting for the State as advisors, would by virtue of their position be entirely unprejudiced.

Concerning the utility of the hypothetical question as it is used today.

there can be little doubt that it has outlived whatever importance it ever had. Its necessity is no longer obvious and its power one way or the other seems to grow less and less. A medical opinion to be of any value must be based upon as complete a knowledge of a case as it is possible to obtain. The evidence in regard to the medical side of a question should never be limited by any rules of evidence originating in the strictly legal aspects of a case. The data concerning the past history and the present illness of a patient and any other facts that are required to be known should be obtained in whatever way is open to the examiner. The facts are of much greater significance than the method of obtaining them.

The legal procedure or the rules of evidence should be so changed that in the medical expert testimony at any rate, no obstacle should be thrown in the way of obtaining the complete truth. Then it might be possible for such testimony to occupy the important place which, by the very nature of some cases, it ought to occupy. When it is admitted that in many instances the whole question is one of a medical nature, the necessity of this change becomes apparent.

In regard to the third point: It can hardly be expected that a physician can rise above the methods which are used in obtaining his opinion. If this method is sanctioned by the best usage there is little that he can do once he has accepted the duty of appearing as an expert. After all, he is asked to form an opinion that is prejudiced and is openly admitted to be so. If custom permits the use of a physician for such purpose there will always be found capable men who will so act. The one means open to such as desire a better state of things is to refuse to prostitute their medical knowledge to purposes of legal usage. By refusing to answer the hypothetical questions, unless they are correct medically, and stating satisfactory reasons for so doing, they can do something towards improving this phase of the expert problem.

The chief purpose of this paper will be achieved if these points have been rendered somewhat clearer to those whose duty brings them into the courts of law as experts, and if it has been possible to demonstrate to those whose interest in the legal phase of medicine is not very vital, the nature and the difficulty of the system of expert testimony as practiced at present in the courts of this country.

THE PRACTICAL USE OF THE ROENTGEN RAY IN EXAMINATIONS OF THE CHEST.

By WILLIAM S. NEWCOMET, M. D., Philadelphia.

For several reasons the employment of the x-ray for the diagnosis of intrathoracic diseases has not met the general approval of the medical profession; the principal reason no doubt is that few realize the range of possibilities or impossibilities that under the varying circumstances this most elastic method has of either confirming or disproving ideas formed upon a certain process in a given case. Perhaps the greatest setback was suffered in its inception, when all manner of means and methods were suggested for what was supposed to be exact measurements, and while they were not entirely erroneous many might be termed fanciful and some of them were more or less impractical. At that time so much was claimed for the power of this new agent and while the greater mass of the profession were not cognizant of these methods, those who investigated were, mostly, men from the ranks of practitioners who were only quasi-interested, soon found that in many observations error existed, and especially so when those unskilled in this line of work tried to reproduce work done by men who possessed better training. However, at the present time this fact is more fully realized, and those of insufficient training in this field do not expect to appreciate the detail. It is therefore the purpose of this paper to draw attention to some interesting observations that were in several instances a decided aid to all concerned. But, before beginning, it would be well to give a short resumé of the method used in studying these cases as well as some explanation to elucidate points that are more or less obscure, and generally not accepted by many radiologists.

In undertaking the study of a given case it is better to have one person go over the case by the ordinary methods of examination while another takes it up from a radiologic standpoint. Both examinations are then compared and mistakes found by either method are corrected by re-examinations. When this procedure is carefully carried out the best results are to be expected, and in many instances points will be cleared that otherwise never would be revealed.

As to the method to be pursued in the x-ray examination, it is best to study the chest as a whole with a large fluoroscope in several different positions, carefully noting all points of interest, which is best done by drawings. This consists in the observation in the general relation of the different organs, the movements and light reflexes upon breathing; after this a radiograph is made to study further detail of lung structure. It should be made in the shortest possible time, which is only accomplished by the most powerful coils. Some radiologists claim that a good radiograph is

LEFT

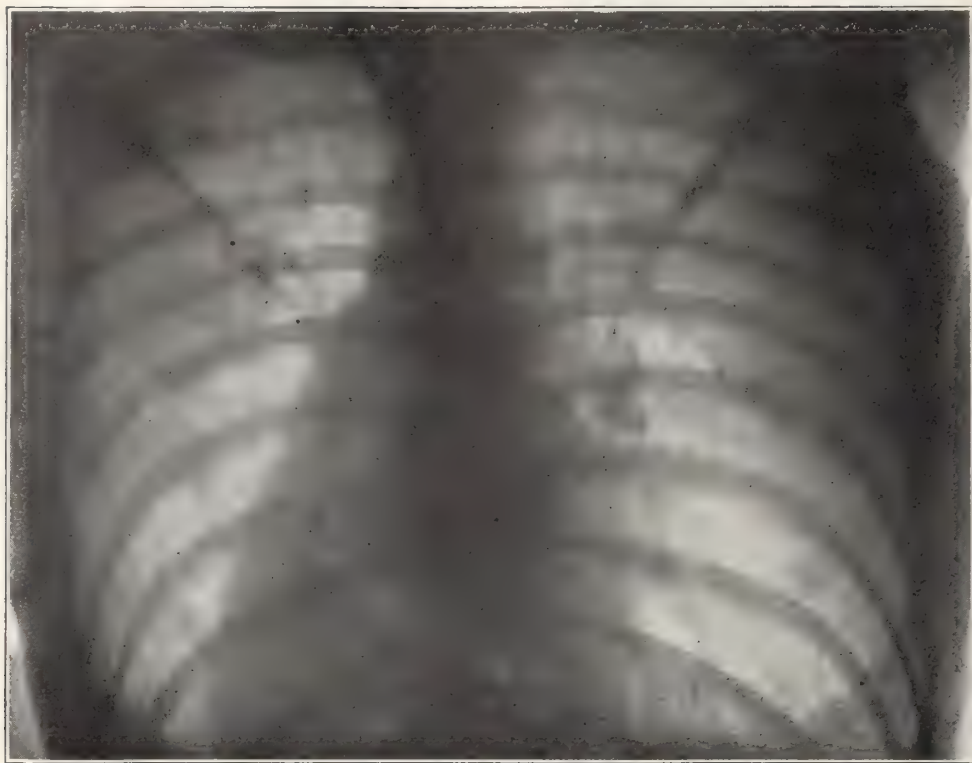
RIGHT



Boy sixteen years. Enlarged heart, but lungs clear. A few scattered lymph glands and position of the bronchi are easily seen.

LEFT.

RIGHT.



Case of early pulmonary infection (tuberculous) following an attack of typhoid fever. While the apices are clear it will be noticed that the bronchial glands in the central portion show considerable involvement.

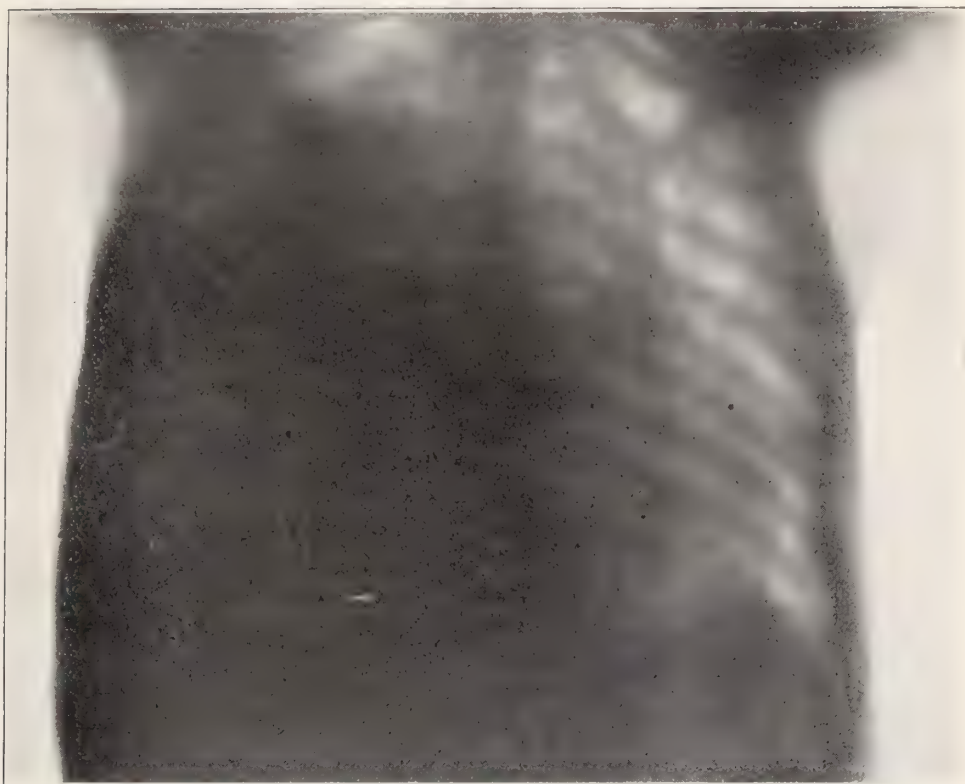
all that is required, but if this means alone is to be employed they certainly cannot appreciate the movements of the different organs, for these movements often give us a decided clue to some pathologic process that otherwise would not have been observed, and then again after taking a general survey of the chest it is possible to obtain that position that will give the best possible radiograph.

A great amount of distrust has been caused by some operators trying to study too much detail in a given case and then again by trying to explain it to those who cannot comprehend it. A better method is to give an opinion in language best understood by that individual.

If the radiographer will work in harmony with the clinician many points of interest will arise and in some instances a positive diagnosis can be made that by other methods alone would be impossible; and with all due regard to those experts in physical diagnosis who claim that this method is superfluous, it might be suggested that if their cases were carefully studied, in conjunction with the x-ray, mistakes, which slip by

LEFT.

RIGHT.



Case of sarcoma; pedicle attached to diaphragm; patch of lung structure can be seen through the dense shadow which, when examined by the fluoroscope, still showed inflation. Heart shadow on right side, with large vessels to the neck.

them, might be averted. The instances illustrate the practical value of this method in some obscure cases.

Dr. John McLean asked to have the chest of a patient examined for a suspected tumor. The history was obscure, dullness extending over the whole left chest and on the right side almost to the right axillary line. The patient had been in several of the larger hospitals of the city where his chest had been repeatedly punctured with the idea of relieving an effusion; however, they all resulted negatively. X-ray examinations showed that the dullness was due to a solid mass and not to liquid. This was confirmed by a post-mortem examination about three months later, when a large tumor was removed that occupied the whole left chest, extending well over into the right, springing from a small pedicle attached to the diaphragm. Microscopical examination showed it to be a sarcoma. The differentiation between a tumor and an effusion was made principally by the examination by the fluoroscope, which showed the constancy in the

shape of the shadow during respiration and during different movements of the body, as well as the fact that some lung tissue was well below and posterior to the tumor, and, at the same time, the heart shadow was in an unusual position. The patient at this time was too far advanced to be benefited by any form of treatment.

In another instance a patient was saved a needless operation and unnecessary suffering (11.22.05. No. 35182). A. C. was supposed to be suffering from an empyema. Repeated tapplings had failed to localize the suspected pus. Examination by the x-ray showed that it was not an empyema, but a large abscess, with considerable chest involvement otherwise, and a few days later this was confirmed by post-mortem examination.

A more fortunate instance where the abscess in the lung was localized and the pus removed by operation was reported by Drs. Talley and Jopson in *Arch. of Pediatrics*, p. 684, 1905.

While the cases that have just been given are a few examples of the extreme types, we may swing to the other end and show cause why this method will be a decided aid in the beginning stages of disease; instances where we, at least many of us, are in doubt as to the exact nature of the existing pathologic process, and while it must be admitted that errors are few, they do and will occur. At the same time it is decidedly more rational to believe that two examinations by different methods will check up fewer errors than two examinations by the same method, even if the examinations are made by different individuals. It must be understood that this method is not to supplant the ordinary methods which have been of so much value to the diagnostician. For ease and rapidity, and general application, the present development of physical diagnosis is not to be excelled; but mistakes will happen, and these mistakes are not from carelessness but from what might be termed a confusion of signs, and it is in these instances that the x-ray examination will be of value. An instance where the x-ray will be a decided aid toward establishing an early diagnosis was mentioned by the author at the meeting of the Pennsylvania State Medical Society, 1906. The case was one of acute leukemia, where the glands of the chest were quite evident several weeks before the external glands gave the slightest evidence or suspicion as to the exact nature of the disease.

At the same time the bronchial glands are no doubt a greater factor in most pulmonary diseases, especially of a tuberculous nature, than has been commonly supposed. The role of the lymph gland in other parts of the body is usually of great activity in all pathologic processes; then why is this not the case here? Then again by some authorities it is believed that all lung infections happen through the mouth by infection of the glands of the neck, then downward towards the lung. Accordingly why would it not be rational to suppose that the bronchial glands

would give the first evidence of lung infection, long before there was any serious degeneration of pulmonary structure?

If the chest was carefully examined in all cases where slight variation in the daily temperature exists, often accompanied with slight rigors and perhaps malaise, no doubt the explanation would often be found. An interesting instance is given by Dr. Talley in *Journal American Medical Association*, Feb. 24, 1906.

Another point that is often overlooked in studying the chest from radiographs alone is the slight enlargement of the vessels, small aneurisms. This fact is very well presented by Baetjer in the Annual Report of the American Roentgen Ray Society for 1906. In this report he also states that 5 per cent of 108 cases examined were discovered by x-ray examination, there being no physical signs that pointed to their existence. Certainly in this class of cases if relief is to be expected the sooner the patient realizes his condition and changes his mode of living the better it will be for his general welfare. At the same time in cases where the aneurism is easily mapped out by the ordinary physical signs, certainly a more comprehensive idea is to be obtained by the x-ray, and if any operative procedure is to be employed, a much better and surer idea of the parts with their relations will be gained if a previous x-ray examination has been made.

Before ending it might be well to call attention to the fact that the x-ray is a dangerous agent in the hands of the unskilled, while the patient is apt to suffer from misinterpretation of the different shadows and both the patient and the operator are likely to suffer physically from burns. And while this article might give the impression that the x-ray was used with more or less indifference, such was not the case. The technic employed has been fully described in an article in the *Jour. of the A. M. A.*, Feb. 24, 1906, and if the instructions are carefully followed, accidents will be rare. The profession should realize that burns are a serious matter and are easily produced when the apparatus used is not fully understood. The operator should never be in the direct path of the x-ray and the patient should only be exposed for the shortest time possible consistent with a thorough examination, and it should always be in the mind of the operator that the given case under examination might be that one who possesses a peculiar idiosyncrasy to the ray. If the examination is conducted accordingly, the use of this method will be more apt to gain popular favor.

HEALING BY FAITH.

DISCUSSED FROM THE STANDPOINT OF A PHYSICIAN

BY J. M. BRADLEY, M. D., St. Louis.

Philosophy, theology and medicine touch each other at many points today as they have ever done, and there is a common ground on which all may stand and on which the physician should speak with as much authority as the priest or the philosopher. The priest treats the soul, the philosopher studies the mind, but the physician treats man, composed not only of the body, but the body plus the mind and soul, and recognizes that as the states of the body may affect the diseases of the soul, so also the conditions of the mind influence the states and diseases of the body.

To this statement, exception may be taken in a very large class of persons, mainly those who have never taken the trouble to inform themselves of the facts, accessible to everyone who chooses to investigate; and by that other class who would not admit any such premise because it would conflict with the prejudiced views which they now hold, nothing being more difficult than to revise our opinions and believe as true that at which we were wont to scoff.

That the mind does influence diseased states of the body we have abundant testimony, handed down from all ages, showing that it is so not only now, but that it was so in every age and race and was known to the people. In ancient times the influence of the mind over the body was not stated in just those terms and was shrouded into mysticism and superstition interwoven with the various forms of religion peculiar to the time and place. We have accounts of numerous miracle and wonder-workers in Egypt, India, Greece, Rome and Scandinavia, and among the followers of Confucius, Zoroaster, Brahma and Buddha; among Catholics and Protestants, Jews and Gentiles; among peoples civilized, semi-barbarous and barbarous.

In more modern times we have the cures of Mesmer, and at Nancy and Salpetriere; Christian Science, Dowieism; by charms and idols; in India, Africa and China. No well-informed person doubts these cures, occurring under such a variety of circumstances and authenticated by thousands of observers. It is equally preposterous to ascribe them to any superhuman or supernatural cause. They are all examples of the influence of mind upon the physical states of the body, and whether that influence has been exercised consciously or unconsciously, or by the conscious mind or the sub-conscious mind, or whether excited by relics, idols, faith cure, mind cure, christian science, spiritualism or what not, in all, the *modus operandi* is the same; the patient must be possessed of a faith in the efficacy of the method he is about to utilize. His sub-conscious mind is stimulated to activity and faith by various suggestive means and

the method will be more efficacious in proportion as he believes, though belief is not essential and results may at times be accomplished without belief, as belief implies an action of the conscious mind, while the cure is effected by the sub-conscious.

There are two chief views concerning these works, even among those whose business it is to know better. The man who prides himself upon his mental attainments will say these cures are chicancery and deception. The religiously inclined will believe the marvels they hear, and if, perchance, they have been accomplished through the creed which they profess, it is to them but another evidence that they have chosen wisely in being a member of that group which so plainly bears the mark of divine favor. On the other hand, if the cures of which they hear have been effected through the instrumentality of some other church or "ism," they say either "it is deception—untrue," or "hands off; this is plainly the work of an evil power with which we must have no dealing."

It is certain that there is often a large element of deceit intermingled with the measure of truth, but the real position is midway between these two extremes, not denying them in toto nor giving credit to the supernatural, but classing them under the head of mental influence, the action of the sub-conscious mind.

And think it not that these cures are of imaginary diseases, because we must carefully distinguish between imaginary disease and diseases of the imagination. In the first the disease has no objective existence or symptoms, while the second is a real functional disturbance, but due to imaginary causes. An imaginary disease, no matter of what character, is a disease that the person thinks he has but in reality has not, as can readily be proven. A disease of the imagination is a real and bothersome entity, one which the patient has and is just as much a disease as is pneumonia or smallpox.

While cures performed by the sub-conscious mind are principally of functional nervous diseases, which include a large group of diseases, with innumerable symptoms, the power for good extends to many others and to organic diseases, which latter are not cured *per se*, as in the first class, but in which the psychic centers so stimulate the physical functions that resistance to the disease process is increased and so indirectly contributes to the recovery of health. The operators of the various systems of healing, on the other hand, being untrained in medicine, are ignorant of the distinction between different classes of diseases and their diagnosis and in applying their mental or faith healing to organic diseases, or infectious diseases, are very likely to make and frequently do make most lamentable errors, working irreparable damage to the patient, if indeed they do not indirectly cause his death.

Let it be plainly understood that nothing here said is intended to be

taken in a controversial spirit, or as an attack on the religious opinions of any one, no matter how much we may differ in our explanations of the points under discussion. To assail a religious faith or system of ethics wantonly and deliberately is a reprehensible and serious matter; it may cause far-reaching harm, the extent of which cannot be foretold, and do untold damage to the morals and well-being of a large number of people, and it is rarely or never agreeable or in any way beneficial to any one concerned.

It is criminal to destroy an honest faith in any religion or system unless we can provide a better substitute, which would very likely not be at all welcome, and it is no part of our plan or endeavor. Proselytism, though it is generally vigorously resisted, is in itself not a morally censurable act, no matter how much its apostle may be at variance with his opponents, because he believes that he is substituting a religion or system that is an advance or improvement over that which he tries to displace. The iconoclast, on the contrary, is very properly a force to be dreaded in proportion to his ability. It is his delight to destroy, or attempt to destroy religions and ethical systems that may be doing a world of good, yet, having accomplished their destruction, he would offer nothing in return and has nothing to substitute for that which he has demolished. Yet, around almost every religion there has in course of time come into being certain abuses and superstitions that it were well to destroy, and religion would profit by their destruction. Mysticism and superstition constitute the illogical part of every religion, or, rather, not a part of religion, but a parasite clinging to and fattening at the expense of religion, often, indeed, like parasites of the vegetable world, in course of time choking the life out of its host.

The chief tenet of mysticism and superstition is contempt for all human endeavor and a tendency to ascribe all things out of the ordinary to the supernatural, never stopping to investigate or seek an explanation without having recourse to the superhuman. Emotional temperaments being mostly to blame for this mysticism, we find its most numerous followers among women. Women of all races, creeds and conditions being most emotional are also the most religious and the most given to following the extremes in religion and the various fads and "isms," and the quickest to credit all things to the supernatural.

While this is so principally in woman it is not exclusively their prerogative. We find many men, who though they try to suppress and hide it are just as emotional and superstitious as their sisters. Down in the heart of every woman and most men is a seed of superstition, transmitted from a thousand ancestors, down deep in some, near the surface in others, and it needs only the rain of circumstances to bring forth a flourishing weed.

This being so, it explains in a measure the large following of women

principally obtained by the various healers, who are unconscious frauds and charlatans, claiming to heal by power of the supernatural, and they are more astonished than the patient when a cure is effected. Strangely enough, the very class of cases where these healers could accomplish much real good, e. g., in functional, but not organic, nervous diseases, are the very ones who are slowest to patronize them.

If these good healers were less visionary, were endowed with more common sense, and had some trained medical adviser to reject the cases of an organic character, letting them practice principally on cases of functional nervous diseases, backed as they are by the superstitious faith of their followers, which, when rightly wielded is an enormous power for good, they could frequently accomplish better results than the physician in such cases.

It is inconceivable how people will risk their health and limbs to ignorant pretenders. If they had a valuable watch or delicate piece of machinery to be fixed, they would not entrust it to a laborer who had no knowledge of its mechanism but would take it to a skilled mechanic. While these faith healers are unskilled laborers when it comes to fixing the 'disordered body, and with no license to practice medicine, still, as indicated above, in selected cases, consisting mainly of functional nervous diseases, which should be selected not by themselves but by a trained medical man, they should be permitted not to give drugs but to practice their mental or faith healing as such upon their believers, and would undoubtedly accomplish much good, the cures being produced not by the intervention of the supernatural, but by the power of the sub-conscious mind of the patient stimulated by suggestion and faith in the operator.

Physicians have frequently been asked why it is that so many people are followers of the various systems of faith cures, using the term "faith cure" in its broadest sense, if it is not true that they heal diseases by divine favor.

We must admit that cures are accomplished by these means, not regularly, nor with any certainty in any particular case, yet in a percentage sufficiently large to keep up the confidence of its followers, but that these cures are effected by any intervention of the supernatural powers we cannot possibly admit. There are many unostentatious physicians practicing who make use of the power of the sub-conscious mind, and at times with seemingly miraculous cures, but such a physician does not cry out to all the people that he has worked a miracle because he knows that he has simply utilized a power lying dormant in the patient's mind; a power like any other instrument or means in medicine that must be used only in particular instances and not applied haphazard to any case that comes. The objection to all these systems is the same. At some time or other some person discovers anew the power of the sub-conscious mind in the cure of disease, credits it to the supernatural, and, thinking himself chosen

among men, sets about to formulate a set of religious regulations, and the cures he performs are taken as miracles worked in testimony of his apostleship. Thus they have formed a religion based on a fact in nature, no more important than hundreds of other facts, such as electricity or wireless telegraphy.

To them it is all-important and seems very wonderful, as indeed it is; but they have merely grasped the outer edge of a great series of facts in nature and cling thereto with a determination born of despair. The power inherent in the mind is wonderful and has never been fathomed. What we know of it is like the spectrum, a certain minor portion of which may be grasped by the unaided sense of sight, but above and below the visible portion exists the greater part of the spectrum, giving us the ultra red at one end and the ultra violet at the other, the heat and chemical rays, and they are none the less potent because the limitation of our sense of sight does not permit us to see them.

So it is with the power of the mind; we know just a little about it, but beyond the territory with which we are familiar there stretches vast regions unexplored which contain many wonderful things. We might almost say with Ligeia: "Who knoweth the mysteries of the will with its vigor: Man doth not yield him to the angels, nor unto death utterly save only through the weakness of his feeble will."

EDITORIAL.

THE GENTLE ART OF ORATORY.

When Whistler wrote his famous tract, "The Gentle Art of Making Enemies," he laid bare to an inquisitive public certain defects in his character which made possible his desire to surround himself with enemies. Of the many abnormalities noted, he failed to mention the gift of oratory for reasons best known to himself but which should have led all others for its prostitution by little wits made large by accretions of pseudo-classicism often converts one of the Fine Arts into something unspeakably monotonous and tiresome.

That Professor Osler is a good doctor and a good lecturer on medical subjects we do not deny, but that his recent Harveian Oration, "The Growth of Truth," delivered at the Royal College of Physicians, London, October 18th, is the modern conception of oratory, is attenuating that much-abused term until it is equivalent to cullings from the *litera scripta*—the musty volumes and documents—to be found in the British Museum and the Bodleian Library, Oxford.

De Quincey, in his essay on Style, mentions the obtuseness of the British ear to the mere music of words and furthermore proclaims that British writers and critics consider the matter of a book paramount to the manner. This being the case, we shall not quarrel with Professor Osler's literary manner, but with the solid matter which he so lavishly uses, sometimes giving credit to a forgotten author into whose well he dips his ever-willing cup and sometimes not doing so, thereby illustrating a truth we have often heard mentioned that when one reads merely for the sake of memorizing, treacherous memory quite often takes unto itself all honor and heeds nor man nor conscience.

The *British Medical Journal*, fearful lest someone might think Professor Osler spent weary days and weary nights poring over ragged books in forgotten corners of England's greatest libraries in anticipation of his herculean effort, hastens to print editorially, "there is no display of learning hastily borrowed—or 'conveyed' for the occasion; he speaks out of the abundance of a store garnered during long years, and constantly added to by loving search in fields which to most men yield nothing." Just what the writer means by the word conveyed in quotation marks is not clear to our American way of thinking, especially after reading Professor Osler's oration, for if ever in literature, and the panegyric must be considered such, not on account of its intrinsic value, but on account of its time and place of delivery, things were conveyed bodily for a purpose, we have them here. Industry is evident in every paragraph, not

the industry which talent engenders but rather the sort of industry that makes us pause and wonder that one small head can contain, even for a day, so many "conveyed" and such a paucity of unconveyed ideas. Innumerable quotations may impress the provincial mind, fed as it always is on encyclopedic lore, but the great world demands a clear, lucid and concise appreciation of a great man's life.

After stripping Professor Osler's oration of the pendants with which he has cluttered the normal existence of a great and good man, Harvey appears before us as a shadow, not as the icon one would wish. And this is wrong for many reasons. In an Harveian address, as in any other, the portrait of the subject is more important than the learning of the orator. But the portrait must remain a shadow so long as it is hampered by pedantic frills and furbelows, the outcome of a peculiar vanity on the part of an orator who mistakes the words and thoughts of others for insight and understanding of the times and character of a historical figure.

PSYCHOTHERAPY.

It seems evident that there is taking place at the present time a movement in a special sort of therapy which is worthy of comment. It is no mere coincidence that within the space of two years there have appeared in various places and in various tongues, a number of articles on the subject of psychotherapy. All these articles show, in spirit, a kind of common tendency and purpose so similar that it seems reasonable to find behind their production the same sense of need.

Dubois' book on the psychic treatment of disease, translated into English, Dejerine's paper on the psychic treatment of neurasthenia and hysteria by isolation in the wards of a hospital, Putnam's experiments with the psychoanalytic method of Freund at the Massachusetts General Hospital, Barker's paper on the result of psychic treatment at Johns Hopkins, and the very recent monograph of Oppenheim on the use of psychotherapeutic letters are merely a few examples that come readily to mind.

As old as medicine, perhaps, there was a realization of the profound influence exercised by the mind upon the individual, either through the agency of oneself or another. For many centuries this influence was wrapped in mystery as being something far beyond the human intellect to fathom. Gradually, in ways that are not readily understood, this enormous therapeutic power was relegated to quacks and charlatans, or if used at all, in so haphazard a way that nothing definite could be gathered from it. If the history of therapeutics should ever be written, an important chapter would be concerned with the effort to trace the devious current of the use of the mind as a curative agent.

With the growth and development of mesmerism and hypnotism the first step towards a rational and conscious employment of the mind to

cure disease was made. In France especially there quickly sprang up a school of therapists who saw in such artificially induced states a power of tremendous significance. Coincident with the rise of hypnotism, there developed a more profound sense of the need of a better understanding of the clinical side of the disease, that seems the chief object of the new therapy, that is hysteria. It was but a step to take advantage of an agent which was in the first instance a means of therapy for the study of hysterical symptoms. As a result hypnotism lost some of its importance as a factor in therapy and gained in significance as a means of investigation. At the same time or a little later, there came into the movement, or was part of it, a new element which was called suggestion. It was soon found that it could be made use of practically in the same way as hypnotism. The medical world, not slow to seize upon any agent with a therapeutic promise, eagerly followed and it was not long before suggestion became a sort of a favorite prescription among the practitioners. Suggestive therapeutics arose as something having a special meaning and needing no special knowledge for its use. Somewhere about this time there came a great wave of enthusiasm for the use of electricity in its many forms, as a wonderful cure-all. As a result, the mind of the average physician was in a very mixed state, with electricity, suggestion, hypnotism all correlated and each used to explain the other in the terms of all of them. This brief sketch will tend to show how far afield the art of psychotherapy was allowed to wander.

It seems strange that no one, amid the maze of contradictions, charlatanism and self deception, had the courage to face the real problem. This problem would have concerned itself with a serious inquiry into the data at hand for the development of a system of psychotherapeutics. The purpose of such an inquiry would have been in the first place to free the whole subject from the methods of fakery and quackery, to bring into light the known facts which psychology would offer, to appreciate the proper place which hypnotism and suggestion have, and to cultivate a method of application which would be, at least in its spirit, scientific.

Freund in his psychoanalytic method, probably, made the first serious step in this direction some ten years ago, and since then there has been a slowly increasing body of facts and experiences at the service of those who are seeking for them. Upon this, after a time the new therapy, new in the sense of being more honest and rational, might be built.

If we are to use the mind as a therapeutic agent against another mind of practically the same kind we are bound to know something of the power we are using and the methods by which the power is applied. The first requisite, perhaps, is to remove swiftly and thoroughly all the atmosphere of mysticism and mystery which has clung to psychotherapy and choked its growth. Then we must face the important fact that by the very nature of the instrument we are using the limits of its development

are somewhat narrow. The mind at best is an uncertain power and in the present state of our knowledge about it, it is better to fully recognize this fact. The therapeutic limits are, of course, very evident and it would be better in the present stage of the thing to see clearly that its application is to stop short at the organic diseases of the nervous system, while recognizing, it is true, that even here there is some place for its use.

All these limitations and suggestions, with many others, with the proper spirit of modesty in face of the difficult problem before us, might be said to be the proper position that we now are justified in taking. In this spirit the newer tendency as exemplified in the papers mentioned above and others of like importance, should be examined. It is not unreasonable to believe that a new era in psychotherapy is beginning which is to supply a want that has been felt by every earnest worker in the field of the psychoneurosis.

"QUELLE BELLE CHOSE QUE LA MEDECINE."

The organization of our medical societies and associations furnishes a proper medium whereupon to implant and nourish a peculiar form of political endeavor, peculiar from politics in general, in that the medical profession has certain distinct characteristics; it is bound together by certain written laws and certain tacit understandings, as to etiquette and ethics. On the surface, medical men are supposed to treat each other with consideration, hide each other's shortcomings, and "guard well that erring member, the tongue." In consequence, medical politics is surrounded and encumbered by many hindrances to free and open speech, but grows upon a sub-soil of the most Machiavelian intrigue.

Let us look momentarily at this court of ambition, the medical society. Since the inception of medical societies the importance of holding the presidency has in all communities been ground for a contention smacking of local ward politics, under the surface, but presenting a serene and smooth sea of smug courtesy above. These conditions, which go back, no matter how long, have been lately reinforced and accentuated by the association of our local bodies with each other, and the establishment of a higher Hall of Fame, a national association.

The presidency of the national body is the focus towards which all medico-political rays converge. The system of this convergence is quite elaborate and establishes a veritable hierarchy. The small county society and the city society are the two first steps. Next to them comes the state association, then an association covering a section of the country, and lastly the great national organization, which sends its dendrites through the entire system. Surely, the national association holds out in its officer-ship a place where the most swollen egotism may be satisfied and the most serious form of hypertrophied ambition soothed.

It is not our purpose to criticise medical organization. We are heartily in favor of the same. What we do wish to develop, however, is the danger that arises in such a perfectly organized machine of bossism and the methods of politics common to a republican form of government. We feel instinctively that the tendency is toward the development of medical politicians, men who have for their aim the holding of office. This, when not backed up by worth to the profession in a medical way, is a dangerous tendency. We believe that the office should seek the man in our medical associations, much more than in any other form of organization. Our first aim should be the advancement of medicine, not the accumulation of titles. From another point of view, these political tendencies have a distinctly bad influence on any medical community. Jealousies arise; enmities are created, with and without cause; and the scene, figuratively speaking, becomes one of blood and lust, rather than one of brotherhood.

It is not possible, of course, to have our elections unanimous, but we feel that only such men should hold office in medical organizations as have demonstrated beyond question their worth as medical men, not as politicians. Let this condition hold in the first steps of our national association, and the future of our organizations, as a whole, for the advancement of medicine, will be assured.

THE OPSONIC THEORY AND MR. BERNARD SHAW.

The stage as a purveyor of disease has had some great successes. The year 1852 is memorable on account of the first attempt on any stage to produce a clinical play—*La Dame aux Camelias*—with its harrowing heroine in all sorts of theatrical demonstrations of tuberculosis. This tentative effort to ascertain the morbidity of a French audience proving successful, authors vied with each other in exploiting the whole gamut of the pathological and at rather short intervals the world was benefited by *Le Sphinx*, in which the heroine had many epileptic seizures with frothing (?) at the mouth; *L'Assommoir*, illustrating the evils of dipsomania and *Ghosts*, showing what hereditary syphilis with dementia really looked like behind the footlights.

Although audacity is the keynote of all these plays, we imagine they served a purpose in so far as they made men and women who really thought after leaving the theater, careful as to the pathological conditions of their friends with the view of narrowing down their social circle by exclusion. Furthermore, a point of view gained by theatrical superficialities on certain diseases, made certain people anxious not to form matrimonial alliances with objectionable members of society; and to complete the picture a very generous attitude informed with selfishness and distrust was assumed toward themselves in consequence of a belief

that they were outside the sphere of morbid or pathological possibilities.

Despite the fact that the opsonic theory of Sir Almroth Edward Wright ranks with the discoveries of Pasteur, Koch and Behring and that a correct reading of Dr. Wright's articles cannot fail to interest the intelligent layman almost to the same extent as the physician, we hear on good authority that so keen and acute an observer of sociological progress as Mr. Bernard Shaw is at work on a play, entitled "The Doctor's Dilemma," in which he intends to emphasize the ridiculous side of a discovery which has been hailed by the medical world. Just as in the case of the plays mentioned at the beginning of this article, we already see the educational effect this will have on a modern audience. Instead of an uplift which would show people the way to strengthen their own intellects, irrespective of the opposing forces of superficiality and inanity, the lessons if there are any to be learned from maltreatment of a scientific topic, will be such as to put more foolish ideas into heads already heavy with pseudo-scientific thoughts.

No doubt the heroine will have the hitherto unknown stage disease—malignant endocarditis. Cultures will be made from the blood and the streptococcus found. A literary explanation of the necessity of knowing what microbe you have to deal with, will be given. Then the resisting power of her blood to this streptococcus will be tested and amidst great applause her resisting power or her opsonic index will be announced as 0.4. Shaw with his customary brilliancy will score when he makes one of his characters say that although the heroine had microbes in her blood she was not successfully auto-inoculating herself. The hero, a sort of Sir George Crofts in "Mrs. Warren's Profession," will be a patient with gonorrheal arthritis affecting the knee. A child with a tubercular knee, an ingenue with tubercles on both irises and an English soldier with Malta fever could make up the complement of the dramatic characters.

That the comedy will be a travesty on a subject which should be treated with delicacy and consideration on account of its intrinsic value to science, is a foregone conclusion. The real tragedy, however, will come in when the literary societies throughout the country dismember the theory in their own peculiar way. Already we perceive harbingers of interfering mothers violently opposed to the subcutaneous injections of bacteria in typhoid fever and tuberculosis. And floating on the highest crest of the agitation will be that dangerous but suave talker of doubts, symbols and esoterics—the professor from the insignificant university—who will expatiate on the Physiology of Belief.

COMMENT.

THE DISADVANTAGES OF A GERMAN EDUCATION FOR THE AMERICAN MEDICAL PRACTITIONER.

So much has been written on the advantages of a German education for the American physician that he who would take a stand against the wave of enthusiasm must needs be a brave, not to say a foolish, man to stir up a hornet's nest.

Enthusiasm is not to be undervalued when it is the resultant of a thorough and wise interpretation of a human act or of another spoke in the wheel of progress for the improvement of the human intellect, but when it is a mere bubble kept on high by the vaporings of chuckle-headed individuals, it is time to prick it in the hope that by doing so the purblind may be brought to their senses and the small voice of the few medical non-conformists may be heard.

The raw product that comes to our medical colleges makes strenuous efforts to over-educate itself in four years and then like any other superior person flies to Europe for another addition to the indigesta that are a weariness to his mind and body. Needless to say he returns with a smattering of German such as *Das Mann* and *Der Frau*, and a complete knowledge of surgery, garnered in three or four months by gazing through magnificent distances at an operating table (the subject is never seen) over the heads of hundreds of other students, and a dozen or so assistants who completely obstruct the view. Not only does his brief sojourn in Germany yield him little profit, but the many new and startling innovations outside the medical clinics obfuscate his brain so that commiseration instead of blame should be his due.

The German-American physician, on the other hand, is in a state of preparedness to profit by contact with new conditions. His knowledge of the language, his idealism more German than American, his point of view which makes him appreciative and discriminative at once when on German soil, yield him advantages over the non-linguistic American too numerous to mention. But he who is handicapped by knowing but one language, and has merely read of Germany in books, whose very essence is garbled, cannot expect an immediate adjustment of German conditions; in fact, a full month elapses before he feels himself orientated. As for the remaining three months which he wishes to devote to clinical observations, the lack of varied and complete cosmopolitanism makes him a mere "looker-on in Vienna," instead of a student profiting by working in the midst of things.

This is no disparagement of German medical knowledge, but a criticism of a large number of American physicians who, upon their return home,

express great dissatisfaction with their work whilst in Germany, when the truth of the matter is that their minds, steeped in American thought and American social conditions, are not receptive enough to grasp, in a short space of time, the fruits of German medical science. For these men, and they are the element that shall make us proud of medical progress at home, the medical schools at Boston, Philadelphia and Baltimore at present are second to none, both for clinical material and laboratory investigation. By going there their education may eventually take upon itself that better phase, derided as culture, but so much better than over-education which spells to-day nothing but a pinch of German, a little Latin and less Greek with which to bamboozle the public.

Fads and fancies have always been our besetting sin and no greater sin against advancement of true American medical knowledge has ever been committed in this country than the foolish attempts of wild-eyed enthusiasts of German universities to ruthlessly tear from the brow of American culture the few bay leaves we suffer her to wear.

POPULAR PHYSICIANS AS LITERATI.

The popularization of purely medical subjects is a rather deplorable phase of medical evolution through which we are passing to-day. No magazine seems to be exempt from the literary inroads of certain physicians, who for publicity and gain, give vent to emasculated utterances medical journals of standing would not print. Were these contributions written by strugglers eager to eke out their slender incomes by other than the precarious source of practicing medicine, our strictures would be superfluous. Such, however, is not the case; for in the majority of instances, well-known names appear over decidedly thin articles, a fact which makes us bold to state that the name, more than the contribution, attracts the editor.

We imagine these offenders of the scientific spirit which the earnest are solicitous to conserve, would not be at a loss for plausible reasons in extenuation of their meanderings in the realm of Belles-lettres: one of their reasons we can clairvoyantly guess, having heard it so often that it has become a twice-told tale. With rare self-abnegation they proclaim it their duty to combat the wrong impressions the public has been receiving from medical articles in newspapers, by publishing in the reputable literary weeklies and monthlies so-called true expressions of the scientific progress of medicine.

If the history of literature teaches us one lesson it is this, that with few exceptions, physicians who make excursions into pure literature or demean their calling by catering to a public whose interest in medical science is but a perversion of an innate craving for sensation, do small honor to the cause of furthering literary thought and literary growth.

Unfortunately, diametrically opposed to these opinions, are men of assured position in the medical world whose medico-literary performances month after month receive enough encouragement from the indiscriminate to make them think that they are active in the service of medicine when in reality they are guilty of an unpardonable delinquency. Moreover as a justification for their attitude these advocates of greater liberty for the physician who wishes to expound theories in popular magazines, will seek for precedents in the history of literature; and although it is possible to point with pride and for example to such predecessors as Samuel Warren, author of "Passages from the Diary of a Late Physician," and A. Conan Doyle of "Round the Red Lamp" fame, they do these writers as well as others such as Keats, Smollett and Goldsmith, physicians in their early years but distinctive literati later on, a great injustice. For none of them, with the possible exception of Warren, so long as they were physicians and surgeons, combined medicine and literature in newspaper or magazine articles to increase their prestige as practitioners.

LITERARY NOTES.

John Murray (London) is about to issue the following publications: Heredity, by Prof. J. Arthur Thomson, of Aberdeen; Recent Advances in the Study of Variation, Heredity and Evolution, by Robt. H. Lock; and the Manufacture of Paupers: A Protest and a Policy, with an introduction by J. St. Loe Strachey.

A. Stuber of Würzburg has recently published the second part of Vol. VI. of *Beitraege Zur Klinik der Tuberkulose*. The scientific activity of the contributors is shown by the following papers; Experimental research on soot inhalation in animals, by Aschhoff and Benecke; the diagnostic value of Koch's original tuberculin, by Roth-Schutz; and the agglutination in pulmonary tuberculosis, by Jessen.

The Deutsche Revue for November (according to the Berliner Tageblatt) will contain an article by Professor von Behring, which should be of the greatest interest to the medical world. The promise held forth is an "authentic exposition" of his recent researches on immunization against tuberculosis. The title, "Diphtheria Serum, Tetanus Serum, Bovo-vaccine, Tulase," indicates a completeness of his latter work which must silence the slightest murmurings of captious critics.

Burbank's Production of Horticulture Novelties is the title of an interesting paper by Hugo de Vries, Professor of Botany in the University of Amsterdam, in The Open Court (Chicago) for November. The appreciation is just and honest and is a calm criticism from a

famous botanist, who, despite his professorial duties, recognizes to their fullest worth the practical benefits to mankind from the work of Luther Burbank.

Die Umschau (October 27th, 1906) contains a series of hitherto unpublished letters written by Justus von Liebig, Friedrich Wohler, A. W. v. Hoffman, Herman Kopp and Wilhelm Weber. The contrast between Heinrich Buff, Professor of Physics at the University of Giessen, quiet, content, and most modest in his demands for improvements in the University, such as large laboratories, though devoted heart and soul to science; and Justus von Liebig, Professor of Chemistry at the same University, fiery, aggressive, demanding much and getting little from the municipality until his patience could stand it no longer and in high dudgeon he left Giessen for Munich, is brought out with considerable force and point. Although they were disparate natures, their humaner side drew them together and a friendship covering many years ensued. The letters, written in an intimate, unstilted manner, are full of grace and charm.

That the art of midwifery a century ago was not the science it is to-day is brought home to us with startling insistence in the recently published *Sainte-Hélène, Journal inédit de 1815 à 1818* by Général Baron Gourgaud. Napoleon's description of Dubois's excitement whilst attending the Empress Marie-Louise in her confinement is a rather humiliating account of the lack of mental stability on the part of a famous surgeon. "The day the Empress was confined," said Napoleon, "I promenaded with her for a short time, although she was suffering from slight pains. I was assured they would continue until 4 in the afternoon. Returning from the walk, I went to my room. Hardly had I arrived there when in rushed Dubois, pale as death and completely out of his head. 'Well, well,' I exclaimed, 'is she dead?' 'No, your Majesty,' answered Dubois, 'but the child is in a transverse position.' This was bad news, for I was given to understand that this happened but once in two thousand cases. I immediately went to the Empress. There was a great deal of talk about using forceps. The Empress protested. Mme. de Montesquiou assured her she had had them applied twice in her confinements and tried her best to overcome the Empress's objections. Her Majesty wept unceasingly. Dubois, at his wits' ends, awaited the arrival of Corvisart, whose presence, he hoped, would give him courage. The Duchess of Montebello was as one bereft of reason. At last the King of Rome was born, Corvisart holding the Empress. And to think, General, that for this stupid business I paid Dubois 100,000 francs! But Corvisart was to blame for the choice."

MEDICAL AND SURGICAL PROGRESS.

INTERNAL MEDICINE.

IN CHARGE OF

JESSE S. MYER, M. D.

THE FAT SPLITTING OF THE GASTRIC JUICE.—Pesthy (*Archiv. für Verdauungs-Krankheiten*, XII., Nov. 4, 1906).—Pesthy has investigated this question by the analysis of one hundred different cases. He used in his tests the stomach contents obtained one hour after a test breakfast, mixing this with an equal part of a solution of the yolk of an egg and incubated for one hour. He then determined the percentage of fatty acids and unchanged neutral fats by the method of Volhard and Stadel. The one hundred cases analyzed have been divided into four classes; (1) Those with normal gastric juice; (2) those with hyperchlorhydria; (3) those with aclorhydria; (4) those with carcinoma of the stomach. In the first class the fat splitting power varied from a minimum of 10 per cent to the maximum of 67.4 per cent, with an average of 36.6 per cent. In the second class the variation ranged from 13.6 per cent to 57 per cent, with an average of 35.1 per cent. In the third the variation extended from 12.5 per cent to 72.9 per cent, with an average of 34.1 per cent. The fourth group, however, gave markedly different results, the fat splitting power ranging from 1.7 per cent to 7.7 per cent, with an average of only 4.1 per cent. The experiment demonstrates that the fat splitting power of the gastric secretion has no relation at all either to the amount of hydrochloric acid or the peptogenic power. Moreover, the fact that in aclorhydria the fat splitting power is good, while in carcinoma it is very greatly diminished, seems to be of decidedly diagnostic importance.

APPENDICITIS LARVATA.—Cohn (*Surgery Gynecology and Obstetrics*, October, 1906).—The various clinical pictures which appendicitis can form are well brought out in this article. The most diverse symptomatology—attacks of pain at any point in the abdomen, or even in the pelvis, nausea, vomiting, constipation, etc., have led to all the diagnoses in the gamut of abdominal disease. After the patient has been treated for months or years without benefit, he is classed as a neurotic. The author warns against doing the patient this injustice. "If we are not sure that the symptoms of which the patient complains are purely nervous ones, we may always satisfy ourselves by the relatively harmless exploratory laparotomy."

LEUCOCYTE FERMENT IN THE BONE MARROW, SPLEEN AND LYMPH GLANDS IN CASES OF LEUKEMIA AND PSEUDO-LEUKEMIA.—Jochmann-Ziegler (*Muench. Medicin. Wochenschrift*, Oct. 23, 1906).—It has been a matter of previous observation that the blood of myelogenous leukemia

contained a proteolytic, trypsin-like ferment, not present in normal blood. The present observations were made on six cases of myelogenous leukemia, one case of lymphatic leukemia, and two cases of pseudo-leukemia with a view of determining what element or what elements were responsible for the ferment. Plates of Loeffler's blood serum were used and minute bits of the organ or fluid to be tested placed thereon, the proteolytic power being reckoned by the degree of liquefaction taking place about the tested particles. Normal bone marrow, and in a much less degree normal spleen, contain the ferment. In the cases of myelogenous leukemia the bone marrow, and also the spleen and lymph glands, both of which had undergone intense myeloid change, were highly proteolytic. In a case of lymphatic leukemia the bone marrow had a moderate proteolytic power, but the greatly hypertrophied spleen and lymph glands were entirely lacking in the ferment. Two cases of pseudo-leukemia showed little difference from the normal. In all the tests the proteolytic power was in *direct proportion* to the number of *myelocytes* as revealed by the microscope in the specimens tested. The teaching of Ehrlich regarding the individuality, or specificity of the lymphatic and myelocytic cells seems to be borne out by these experiments.

PATHOLOGY AND BACTERIOLOGY.

IN CHARGE OF

CARL FISCH, M. D.

THE VASCULAR CHANGES IN NEW FORMATIONS AND IN THEIR NEIGHBORHOOD, AND THE GENERAL ARCHITECTURE OF THE VESSELS IN MALIGNANT TUMORS.—W. Goldmann (*Deutsch. Med. Woch.*, 1906, No. 41.)—This valuable and important paper was read before the first International Conference for the Study of Carcinoma, held in Heidelberg—A. M. Frankfort—this year. The review by Colmers is all that has as yet been published, but it is explicit and broad to a degree, so that its re-publication here is prescient of the value of the full publication when it appears. Goldmann bases his investigations upon the study of vascular degeneration on the elastic fibres, that after Weigert prove to be the most resistant of all tissue elements, and can be stained when all other elements have lost their characters. He could demonstrate by Weigert's method that in sarcomata and in carcinomata, even in the first stages, degeneration of the vascular walls obtains. The changes are very extensive in the venous channels, less marked in the arteries. Common to both classes of vessels are the following conditions,—the direct perforation into the lumen and the complete occlusion of a vessel by a thrombus that undergoes fibrous organization. The development of the connective tissues in the thrombus stands in direct relation to the amount of stroma in the original tumor. In a scirrhus it can be so marked that it is almost impossible to recognize the thrombus as originally carcinomatous. Goldman established finally the method by which tumor cells approach the walls of a vessel.

They proceed not through lymphatic canals, but by way of the vasa vasorum. The pathologic appearance, therefore, in an artery is a periarteritis, in a vein an endophlebitis of carcinomatous origin. Similar are the conditions in other canalicular structures limited by an elastic sheath, the glands and other appendices of the skin for instance. In perforating the canals of these structures the carcinomatous growth is not organized and rapidly undergoes degenerative changes. The changes in arteries and veins are considered by Goldmann as decisive in a diagnosis of the malignancy of a tumor. No other new formation brings about such a growth into and through canalicular structures of the organism. Goldmann extended his studies to animal tumors, particularly mouse carcinomata, and he found here the same conditions that obtain in the human tumor. It is very remarkable that single cells and groups of cells circulate with the blood stream in tumors that neither macro- nor microscopically show any evidence of metastatization. The observation proves that the mouse carcinomata are genuine malignant tumors.

The general arrangement of the vessels in malignant tumors Goldmann has studied in man and mouse by injections of bismuth and oil; from the specimens Roentgen pictures were made that allowed him to study macroscopically the circulatory condition within the tumor in comparison with that of the intact surrounding tissues. These studies demonstrated an enormous increase of vessels in the peripheral zone of a growing carcinoma. The increase may apparently disappear in stationary conditions and in degeneration. The arrangement of the new-formed vessels is enormously erratic, which is the more remarkable as late researches have shown that under normal conditions the arrangement of vessels is typical and definitely depends upon the function and development of the organ. A malignant growth destroys even in the beginning of its growth this typical arrangement. The new-formed vessels are almost all small in caliber; the larger vessels rapidly break up into small ones and into capillaries. The picture of a tree is never seen. The same condition obtains for mouse carcinomata where an injection of a special kind of ink into the circulation by way of the heart was used; the animals were hardened in alcohol and made transparent in glycerin. The enormous increase in the number of vessels is the more startling, as in the loose connective tissue with a scanty supply of blood the experimental tumors arise from a pulp of isolated carcinoma cells. The question whether these vascular changes are specific for malignant tumors is decided by Goldmann in the negative by extensive investigations on chronically inflamed, especially tuberculous and syphilitic tissues. Principally the changes, new formation and degeneration, are the same in these as in tumor growth. The vessels react on any deleterious influence, causing a tissue proliferation, as long as their vitality is intact. In carcinomata of long standing and great mass the decreased resistance of the connective tissue may be due to the fundamental loss of the capacity of vascular proliferation. The latter is not considered by Goldmann as only serving nutrition, but also as protective in warding off the invasion of harmful agents. Accepting such a view, the following facts become clear in their meaning: First, that in infection and tumor the changes of the vascular structures are the same. That in very extensive carcinomatous venous degeneration metastatization often does

not occur, above all the frequently made observation in man and animal, that the circulation may carry great numbers of carcinoma cells without leading to the formation of metastases. Microscopically it appears that these cells perish within in the blood. Analogy exists between malignant tumors and infectious diseases; that primary hæmatogenous infection is less serious than secondary infection. The author attempts to explain the origin of relapses and their long latency by certain vascular changes that he announces will be published in another paper.

Besides the great interest that theoretically this work must arouse, it is of great importance for the purposes of pathologic diagnosis. The anatomo-pathologic determination of malignancy of a tumor has so far been made dependent upon factors that, considered singly, are not conclusive and only in their complex demonstration will allow of a high degree of scientific certainty. The work of Goldmann increases this possibility to almost final certainty, by the characteristic differences established between the vascular changes in malignant tumors and chronic inflammatory processes and those observed in benign new formations.

TRANSPLANTABLE ROUND-CELL SARCOMA OF THE DOG.—R. Sticker (*Zeitschr. f. Krebsforsch.*, Vol. 4, H. 2).—Sticker studied the way in which the tumor, inoculated under the skin, into the peritoneum, bone, intestine, etc., developed, grew and extended. He never could observe an implication of the surrounding tissue in the tumor formation. The large omentum is a favorite seat of the tumor, and its cells locate where they find an opportunity to attach themselves to small vessels. Certain conditions caused hematogenic and lymphogenic metastatization. Sticker studied the blood and the peritoneal exudate of infected animals and found that the tumor continuously secretes certain substances into the blood. He the tumor continuously secretes certain substances into the blood. He observed spontaneous retrogressive thermic changes in eight out of eighteen cases. The tumor cells were subjected to thermic, chemical and other influences and their histologic behavior studied. It was found that a general immunity is produced against the invasion of tumor cells in cases where spontaneous recovery takes place. The serum of immune animals or of animals afflicted with a tumor, has no agglutinating qualities for a suspension of tumor cells. Nevertheless the serum has a therapeutic effect by influencing the growth of the tumor and can result in a curative effect if the growth of the sarcoma is not too advanced. The author thinks that at this period the body is unable to produce protective substances. Sticker's paper is of value as adding new material to facts already known, and as confirming the trend of opinion about the effect of spontaneous disappearance of a tumor on the susceptibility for tumor formation in the future. The suggestions on antitoxic or other effects of the immune serum are not based on definite observations or experiments. They are unnecessary in view of the interpretation that Ehrlich has given this immunity following spontaneous retrogression of a tumor.

EXPERIMENTAL INVESTIGATIONS ON LEPROA.—Charl. Nicolle (*Ann de l'Inst. Pasteur.*, May, 1906).—The long series of experiments conducted by Nicolle on monkeys (mainly species of macacus) cannot be detailed. The result has been that especially macacus sinicas has a very pro-

nounced susceptibility to lepra infection, when inoculated with leprous products. Successful infection is possible only by subcutaneous inoculation. To arrive at positive results, it is necessary to utilize for infection, material rich in lepra-bacilli and derived from patients that have not been under treatment. The lepra in monkeys, produced experimentally, is peculiar by the fact that the period of incubation is very long, and that the susceptibility of the animals proves to be highly increased by repeating the inoculations with virulent material. Nicolle refutes the theory held by some observers, that the lepra-bacillus is only a race of the tubercle bacillus, by the proof that all of his inoculated monkeys, so highly susceptible to tuberculous infection, never showed any tuberculous lesions. Nicolle's work appears to be the beginning of the end of all doubts that so far were entertained about the specific character of the lepra-bacillus. It has, besides, done much to open a way to study experimentally the course of this infection and its biologic character.

THE PRESENCE OF SYPHILITIC ANTIBODIES IN THE CEREBRO-SPINAL FLUID OF PARALYTICS.—A. Wasserman and F. Plaut (*Deutsch. Med. Woch.*, 1906, No. 44).—The possibility of demonstrating antibodies in the blood serum of persons in the late stages of syphilis, or after recovery, was shown by Wasserman and Citron some time ago. The method used for this purpose was that suggested by the discovery of Bordet and Moreschi of the complement absorption by even the minutest quantities of antigenes and antibodies. Numerous investigations in this direction have established the possibilities of obtaining specific reactions in obscure pathologic conditions. Wasserman and Plaut have extended these to 42 cases of paralysis and in 32 of these were able to prove that the cerebro-spinal fluid contained syphilitic antibodies. The great number of precautions necessary to obtain reliable results were carefully observed and many control experiments were made. As to the conclusions to be drawn, the authors give the following conservative statements:

For the present it is only positively established that in the spinal fluid of the majority of cases of paralysis examined, specific luetic antibodies occur, in other words, that these persons previously had acquired syphilis, most likely still have syphilis. It is, however, not justified, to conclude, that the paralysis has a causal relation with this infection; for such a conclusion a much larger material is needed. It is above all necessary to find whether persons previously afflicted with syphilis carry antibodies in their spinal fluid, but do not suffer from paralysis or tabes. The attempts to demonstrate besides the antibodies also antigens in the fluid from paralysis have, with the exception of one case, been negative. There is no doubt but that the work of the authors will be the stimulus for numerous control investigations. The importance of the method, if found to be true and specific, will be felt in many unsolved problems of nervous diseases. The difficulties lie in the obtaining of the material and in the complex way in which by control experiments errors have to be eliminated. If true, this new knowledge will change many ideas on certain pathologic conditions in syphilis and in diseases caused by or secondary to syphilis.

DIAGNOSIS.

IN CHARGE OF

ALBERT E. TAUSSIG, M. D.

AN APPARATUS FOR OBTAINING SMALL QUANTITIES OF BLOOD.—Wieck (*Münch. med. Wochenschr.*, 1906, No. 40).—Everyone who has worked with the Thoma-Zeiss hemocytometer has experienced the difficulty of drawing the blood exactly to the required mark. If the blood is sucked up very slowly and carefully it sometimes clots in the tube; if rapidly, it may be drawn up too far, sometimes even into the bulb. A not inconsiderable amount of expertness is required always to avoid these sources of error. Wieck has devised an instrument for eliminating these difficulties. The hemocytometer pipette is fastened to a little frame, along which runs a small ratchet wheel that clamps the rubber tubing attached to the pipette. As the wheel is slowly turned so as to move the clamp up along the tubing, a vacuum is produced in the pipette, whereby the blood is slowly sucked up to the required mark. Suction obtained in this way can be much more accurately gauged than when produced by the mouth. The apparatus can, of course, also be applied to other pipettes and will doubtless be found useful by those who do not do blood work with sufficient frequency to become expert in the ordinary methods.

THE DIAGNOSTIC VALUE OF THE LOUDNESS OF THE FIRST CARDIAC SOUND.—Kurt (*Wien. klin. Wochenschr.*, 1906, No. 40).—The first cardiac sound is normally heard distinctly louder over the upper portion of the right ventricle, than over the corresponding portion of the left ventricle. If, however, the latter has undergone hypertrophy, even though it be slight, this relation is reversed and the first sound is heard more loudly over the left than over the right side of the heart. When accompanied by an accentuated aortic sound, this symptom suffices for the diagnosis of a hypertrophied left ventricle even when an enlargement cannot distinctly be made out by percussion. Such conditions may be found in well compensated mitral insufficiency, in women who have borne many children, in young people as the result of over-exertion and often in beginning arterio-sclerosis.

THE EARLY DIAGNOSIS OF PRIMARY SYPHILITIC LESIONS.—Danziger (*Berl. klin. Wochenschr.*, 1906, No. 42).—The writer reports five cases in which he demonstrated the presence of the spirochæte pallida and thereby established an early diagnosis although no other clinical signs were present.

THE QUANTITATIVE ESTIMATION OF SUGAR IN THE URINE.—Bendix and Shittenhelm (*Münch. med. Wochenschr.*, 1906, No. 27).—A method of roughly estimating the amount of sugar present in the urine that is too much neglected consists in adding to the urine an equal amount of sodium hydrate solution, boiling and noting the change in color (Moore-Heller test). The writers have utilized this method in their chromosac-

charometer. The standard tube is filled with a brownish fluid whose color is that of urine containing one per cent of sugar and boiled with an equal amount of sodium hydrate solution. The determination is done as follows: Boil the sugar-urine with an equal volume of 10 to 15 per cent sodium hydrate for several minutes, set aside to cool and pour into a graduated test tube up to a prescribed mark. If the color is that of the standard fluid or paler, the urine contains one per cent of sugar or less. If darker, add water until the standard color is reached. The amount of water added will reveal the per cent of sugar present. The principle, it will be seen, is that of Gower's hemoglobinometer. The method should evidently not be applied to high colored urines, but may be found useful in the typical pale urine of diabetes. Whether the degree of accuracy obtained as compared to that of other methods warrants the time and pains required, seems doubtful.

STARCH GRANULES IN URINE.—Rahel Hirsch (*Zeitschr. f. exp. Path. u. Ther.*, 1906, No. 2).—It has usually been assumed that the starch granules occasionally found in the urine are due to accidental contamination, usually from starched underclothing. The writer, however, has found that starch granules may be absorbed from the digestive tract into the circulation unchanged and are then excreted by the kidneys. She succeeded in demonstrating the presence of starch grains not only in the urine, but also in the blood of a dog that had been given 500 g. of potato starch in milk.

PARAVERTEBRAL AND PARASTERNAL PERCUSSION IN PNEUMONIA.—Pollak (*Wien. klin. Wochenschr.*, 1906, No. 40).—A significant sign in pleurisy with effusion is the presence of pulmonary resonance along the spinal column on the affected side for a considerable distance below the level of the fluid elsewhere. Attempts have been made to utilize this observation in the differential diagnosis between this affection and the consolidation due to pneumonia. The writer, however, has found the same condition in pneumonia when localized near the vertebral column and maintains, therefore, that this sign cannot be used for the differentiation of these diseases.

A NEW METHOD OF TESTING KNEE-JERK AND ANKLE CLONUS.—Feix (*Wien. klin. Wochenschr.*, 1906, No. 41).—The two essentials for obtaining a correct notion of the presence or strength of knee-jerk and ankle clonus are muscular relaxation and the diversion of the patient's attention. The writer believes that these conditions can best be fulfilled if the patient is made to lie on his side with eyes closed and knees drawn up, as if asleep. This position will be found especially useful for obtaining these reflexes in bed-patients.

W. Guttman (*Fortschr. d. Med.*, 1906, No. 29) suggests still another method. With the patient seated on a chair, a towel is placed about the thigh and pulled upward so that the thigh hangs suspended in it. Another towel is placed about the calf of the leg and also pulled upwards until the lower leg rests in it. By this means the muscles of the leg are relaxed even in patients in whom such relaxation cannot otherwise

be obtained and the knee-jerk if present can always easily be elicited.

BARBERIO'S REACTION FOR SPERMATIC FLUID.—Levinson (*Berl. klin. Wochenschr.*, 1906, No. 41).—This test consists in the production of typical crystals when picric acid is added to spermatic fluid or to an aqueous solution of the dried sperma deposited on clothing, etc. Its great forensic importance is due to the fact that it seems to be specific for human sperma. The writer finds that the reaction is trustworthy and that it is positive even in cases of azoospermia, when the microscopic examination of the suspected fluid would be negative.

SURGERY.

IN CHARGE OF

WILLARD BARTLETT, M. D.

EXTRACTION FROM OESOPHAGUS OF A COIN WHICH HAD REMAINED THERE THREE MONTHS.—Kirimission (*Bull. et. Mem. Soc. de Chir. de Paris*. No. 29, 1906).—The patient was a little boy, three years of age, who had been playing with several coins and swallowed one without any symptoms manifesting themselves immediately. The fact would not have been discovered except that the coin was found to be missing. Little by little, however, swallowing became impaired, at first when the child took solid food and later when liquid was introduced. He grew thinner and thinner and death seemed the inevitable outcome. Our author introduced a hook into the oesophagus and immediately struck an obstacle, but did not succeed in pulling it out at the first attempt. He was not certain enough of his bearings to warrant the use of force. Then a radiograph was made and at the next attempt he withdrew the coin without the slightest difficulty. There were no after effects, and the patient left the hospital in a few days.

BLOODLESS OPERATIONS UPON THE SKULL DONE UNDER A CONDITION OF INCREASED ATMOSPHERIC PRESSURE.—Sauerbruch (*Deutsch. Gesellschaft fur Chir.*, April, 1906).—This author made himself famous by his operations within the thoracic cavity under conditions directly opposite to the above. However, now he applies his theories to a new field and apparently with every assurance of success. His idea is to prevent hemorrhage from the vessels within the skull by compressing them. He works in an atmosphere compressed to a height of 50 mm. of mercury. and it is interesting to note that such organs as the liver, when exposed to this pressure, will not bleed at all, although cut in any direction. When the column of mercury stands at only 20 or 30 mm., it is possible to work within the skull bloodlessly. There is also no danger of air embolism if the technique be properly carried out. The author does not conclude, as yet, that the method is applicable to the human subject.

THE TECHNIQUE OF OPERATIONS FOR UMBILICAL HERNIA.—Graser (*Deutsch. Gesellschaft fur Chir.*, April, 1906).—This apparently most dif-

scult and one might add, dangerous procedure, has at least the charm of being apparently effective, hence it is reviewed in its main details. The idea is to suture up the abdominal wall in the following way after the contents of the sac have been taken care of. A transverse slit is made from the edges of the opening through the anterior sheath of the rectus muscle. This is next drawn to the middle line, being turned out of its sheath on either side, and the median edges sewed together. After this has been accomplished, a vertical approximation or overlapping, if possible, of the anterior sheath is performed. It would seem to the reviewer that such an extensive plastic operation might form a rather serious finale to the usual difficulties encountered in an old, large umbilical hernia. The much less complicated and thoroughly effective Mayo operation seems to fulfill all requirements.

THE RADICAL CURE OF FEMORAL HERNIA.—Coley (*Annals of Surgery*, October, 1906).—An article from Coley on hernia is necessarily of more than usual interest since he has done more operative work in this line than any living man. Not only this, but his success is fully equal to that of any other surgeon, to say the least. He has done 117 femoral operations in the last fifteen years, and just fourteen times as many for inguinal hernia. Of the former, 103 were done by the purse-string suture method, which for simplicity and effectiveness is the equal, if not the peer, of any other method, in our author's opinion. The idea is, after the sac has been exposed and the fat removed from around it, to pull it down well, ligate it above the neck and push it back into the abdomen. Then a suture of kangaroo tendon is placed as follows: Through the inner portion of Poupart's ligament, through the pectoneal fascia and muscle, the fascia lata and then again through Poupart's ligament, a short distance outwardly from the first. On tying this suture, the canal is completely obliterated and after the fat and skin have been closed, the operation is complete. In 100 cases operated upon after this manner not a single recurrence was noted.

APPENDICITIS IN BABIES.—Kirmission and Guimbellot (*Revue de Chir.*, No. 10, 1906).—An observation of this sort in a child of eleven months led the authors to look up the literature of the subject and report twenty-six cases. Nine were in the first year of life, seventeen in the second and of the whole number, nineteen died. The authors consider that this disease is not nearly so rare at this time of life as has been supposed. It develops rapidly and the outlook is exceedingly grave. The only cures which have been reported are those in which an operation has been done in the acute stage and that without the waste of any time. The usual reason for not operating promptly is that it is most exceedingly difficult to make a positive diagnosis.

IMPORTANCE OF EARLY RECOGNITION AND OPERATIVE TREATMENT OF MALIGNANT TUMORS.—Bloodgood (*Jour. Am. Med. Ass'n*, Nov. 3, 1906).—Experience has shown that patients from whom carcinoma and sarcoma have been removed have remained well sufficiently long to show that cures have been effected. In the onset neoplasms are local diseases and if removed at this stage cures are accomplished. Permanent cures are record-

ed after the complete removal of the primary disease and the metastatic areas. Sarcoma disseminates later than carcinoma and generally through the blood vessels. In this instance the prognosis is hopeless. It is a question whether cures are accomplished in the class of sarcoma which give rise to metastatic tumors in the neighboring lymphglands. In regard to diagnosis, all tumors should be considered malignant until all means have been exhausted to demonstrate that they are innocent. The life of a malignant tumor before operating may be divided into three stages. 1st. The time during which the growth of the tumor does not attract the attention of its host. 2nd. The time which elapses before the physician is consulted regarding the growth. 3rd. The time the physician consumes in making the diagnosis. Nothing can be done to shorten the first stage; as to the second, the public must be educated to the fact that cancer is curable and that cures are in direct proportion to the promptness with which they are treated. This should be done in a similar manner to that in which the public is being educated concerning tuberculosis and its curability in the early stages. If the public can be instructed that the earlier treatment of all tumors is the most important and less mutilating, the percentage of cures will be greatly increased. To shorten the third period the general profession must be impressed from accurate and conscientious statistical studies in surgical clinics that the truth of the statements made in this paper is unquestionable. The future progress in surgery is in the hands of the general practitioner and the surgeon should not appeal to the public over his head. He sees the patient first and he should educate the people because of his closer contact with them. The earlier the clinical diagnosis the better the prognosis. The general practitioner and surgeon must work together in their efforts to improve the results of surgery. The clinical aspects of pathology must be well understood by the surgeon in order that he may work with the pathologist whose more expert knowledge of the cellular element of the picture makes his aid necessary. Frequently an exploratory incision is necessary to make an early diagnosis. If clinical diagnosis cannot be made on incision, a frozen section may be examined in five to ten minutes and clear up the diagnosis. Bloodgood asserts that surgical technic is in advance of surgical diagnosis and pleads for the better development of the latter. It is the surgeon's duty to meet the requirements of diagnosis when a patient is referred to him by the general practitioner. Bloodgood thinks exploratory incisions are to be commended, though he finds frequent statements in literature that exploratory incisions are dangerous procedures; in his own experience he has had no trouble from metastasis as the exploratory incision is followed immediately by complete operation. Bloodgood classifies the various kinds of malignant tumors and discusses their treatment and diagnosis at length. In all he advocates early and radical operation.

CYSTS OF THE LONG BONES.—Lexer (*Deutsch. Gesellschaft fur Chir.*, April, 1906).—The author adds another to his already well known investigations on diseases of the bones. The patient was a 14-year-old boy in whom a tumor became apparent within the upper portion of the shaft of the humerus. At the operation the shell of bone was found exceedingly thin, the inner surface of the cavity smooth, and after sub-periosteal

resection, the defect was filled out with a section from the fibula of a leg which had just been amputated. The healing was perfect, and the functional result all that could have been desired. The origin of the tumor was ascertained only after cartilage was found in the wall of the cyst. It was then certain that the tumor was originally an enchondroma which had degenerated.

CONTINUED SLEEP AFTER A FALL UPON THE BACK OF THE HEAD.—Roettger (*Deutsch. Gesellschaft für Chir.*, April, 1906).—This patient had lain dormant for a year and a half with the eyes closed and without speaking a word and without his condition changing in the least. The truth of the above statement was established by the most careful watching. The patient has asked for nothing to eat since the accident, and the author is certain that he is not simulating. There are no localizing symptoms, hence the case is regarded as one of a severe hysterical stupor.

TRANSPLANTATION OF THYROID TISSUE INTO THE SPLEEN.—Payr (*Archiv. für Klin. Chir.*, Band 80, Heft 3).—After noting the frequency with which thyroid tissue is deposited in bone marrow in the processes of disease, our author tried the transplantation of it into the same situation, but without much success. Then he reflected how the spleen and thyroid are both ductless glands, the latter having an exceedingly rich blood supply, and concluded that the spleen might prove a suitable soil for such transplantation. His technique is first to expose the spleen and then take one thyroid lobe, split it, invert the resulting halves and implant them with the raw surface outward. He did this on forty-eight animals, mostly dogs and cats. Many of these lived three or four months, one of them for almost a year. In this way he was able to prevent, in many cases, the symptoms which usually accompany removal of the thyroid gland, and to further prove that its presence in the spleen led to this result, he removed such spleens secondarily and was rewarded by the expected symptoms. In this manner he believes that he has proven the value of his proposition. He gives at great length the results of his anatomical studies on spleens, into which thyroid has been transplanted, and proves conclusively that thyroid tissue in this new bed, although it shrinks in size usually, does not disappear. He found new communications between the blood vessels of these two different tissues, and traced colloid in the vessels, as well as the lymphatics of the spleen. He did this operation on one patient, a cretin; at the end of six weeks the child was markedly improved and six months after the operation she was so changed for the better that she was scarcely recognizable.

ORTHOPEDICS.

IN CHARGE OF

NATHANIEL ALLISON, M. D.

THE JOINT AFFECTIONS OF HEMOPHILIA.—Sheldon (*Med. Record*, Oct. 27, 1906).—Acute affections of the bones and joints in children are

so important and are so serious when not properly treated, or when treatment is delayed, that it is well to bear in mind even the exceedingly rare conditions, because of their significance when present. Hemophilia and its joint manifestations have been studied for years, but the rarity of these affections has made the truth slow in coming to light. The author reviews the principal writings on this subject, and states that the importance of diagnosing these conditions cannot be overestimated. The history is most important. In a primary attack, a leucocyte count may aid in excluding infection, but aspiration of the joint, followed by examination of the withdrawn fluid, should be resorted to in doubtful cases. In diagnosing old cases, the history of previous attacks is most important. The treatment of the cases is very difficult. Aspiration should be done with an exceedingly small needle. Withdrawing the fluid doubtless assists in preventing the occurrence of permanent joint changes. Nothing can be done for old cases. Koenig opened two of these joints by mistake. One was also opened at Omaha, and another at Gottingen. All of these patients died from bleeding from the operative wound. The author reports three cases. One, a girl of six years of age, received a slight injury to her knee, which became markedly swollen, and showed evidences of fluid in the joint cavity. Aspiration was done, and three and a half drams of blood removed. She entirely recovered, but had subsequent attacks. The second case was a new-born infant; the first hemorrhage seen in the ankle-joint. Other hemorrhages quickly followed from mucous membranes, and the child died on the ninth day. The third case was a boy twelve years of age, with history of being a bleeder. After slight injury developed a condition similar to acute arthritis of left knee. This subsided, but six months after a second involvement of the knee, the boy suddenly died from hemorrhage of the bowels.

THE SURGERY OF THE AFFECTIONS FOLLOWING NERVOUS DISEASES, RESULTING IN PARALYSIS, SPASTIC AND FLACCID.—Redard (*Med. et Chir. Infan.*, July 1, 1906).—The author gives a complete summary of the various methods of tendon transplantation, nerve transplantation, the indications for tenotomy, operations upon the bones to correct deformities, arthrodeses to fix joints, and the proper place and use of apparatus. He concludes that operation is contra-indicated in young children, where the tissues are not strong, and where the general physical resistance is lowered. The best results are often obtained from a combination of various operative procedures, such as tendon transplantation with arthrodesis. Simple cases where the general conditions are favorable frequently result in complete cures, almost always in rapid amelioration of the difficulty in walking, and the general condition is much enhanced. Also in serious cases, even where there are cerebral complications, surgical treatment often is followed by remarkably favorable results. Orthopedic treatment as such, i. e., massage, immobilization, re-education of muscles, apparatus, etc., should be used to complete the favorable results obtained by surgery.

POTT'S DISEASE; FORCIBLE AND OPERATIVE CORRECTION.—Gormon (*Rev. d'Ortho.*, Nov., 1906).—The author reports a case on which forci-

ble correction was done in 1896, when the child was seven years of age. There was every evidence of Pott's disease at that time. After the operation the case was treated continuously for three years by the surgeon who did the operation: Present condition: Kyphos extending from third dorsal to first lumbar vertebræ. Both legs flexed, both feet held in equinus position. Symptoms indicating complete relapse.

GENITO-URINARY SURGERY.

IN CHARGE OF

H. McC. JOHNSON, M. D.

URINARY INCONTINENCE.—Peterson (*Jour. A. M. A.*, Nov. 3, 1906)..—Incontinence in woman is usually due to vesico-vaginal fistula. The ordinary varieties of such fistulæ are easily cured by plastic surgery if modern methods be employed. Even large fistulæ, involving a considerable portion of the vesico-vaginal septum and surrounded by dense scar tissue, can be successfully closed by loosening the attachment of the bladder, separating this viscus from the vaginal wall and closing the rent in the bladder wall by a separate suture. But there will always remain cases where the neck of the bladder and portions of the urethra have been so destroyed as to preclude the restoration of the urinary sphincter muscle so that continence will be established. Under such circumstances the following procedures may be considered: Construction by plastic operation of a urethra which will serve as a channel for the urine, and utilization of the rectal sphincter by diverting the urinary stream into the rectum, either directly by an anastomosis between the bladder and the rectum, or indirectly through the formation of a recto-vaginal fistula with a subsequent closure of the introitus vaginæ. The author reports a case in which the last named procedure was attended with an excellent result. As regards infection, the urinary stream from the ureter or bladder can be safely diverted into the intestine for the purpose of utilizing the anal sphincter, if the ureteral orifices remain intact. On the other hand, pyelonephritis in varying degrees of intensity always follows the anastomosis of a severed ureter with the intestine. Any slight amount of fecal matter finding its way into the vagina will be washed back into the rectum by the constantly flowing urine. There is no danger to be feared on this score, provided the fistulous opening is not too large. Should contraction of the fistulous opening occur, the apertures can be easily dilated from time to time under an anesthetic, a procedure far preferable to enduring the discomfort of incontinence.

Experimental work of clinical cases has shown that the rectum tolerates the presence of the urine and acts as a good substitute for the urinary bladder. The patient has good control of the anal sphincter, the urine being passed only once in about two or three hours, and only once at night. No irritation of the rectum seems to result.

EXPLOSIVE RUPTURE OF THE TESTICLE FROM TRAUMA.—Cotton (*Am. Jour. of Urol.*, Nov., 1906).—The patient in which this condition occurred, as reported by the author, had previously been in good health, but had a left varicocele and an inguinal hernia. He was struck in the scrotum by a batted ball. There was a moderate amount of shock and pain, which subsided in a short time. When seen, five hours after the accident, there was a large steadily increasing tumor of the scrotum on the left side, of a purple black color, tense, but only moderately tender. The discoloration extended for an inch on the inner side of the penis, and there was swelling and discoloration in the left groin. During the few minutes of examination and preparation there was a definite increase in the tumor. Nothing could be palpated in the mass. At operation the cellular tissue was found infiltrated, the tunica vaginalis torn, and in the cavity of the tunica were 46 ounces of clots. On removal of the latter, shreds of testicular tissue followed. The spermatic artery was torn. There was also arterial bleeding over what had been the base of the epididymis. The epididymis showed but little damage, the cord was undamaged save for rupture of some of the varicose veins. The right side of the scrotum was intact, save that it contained some blood, evidently forced over from the left side under pressure. An uneventful recovery ensued.

TREATMENT OF TUBERCULOSIS OF THE URINARY TRACT IN WOMEN.—Garceau (*Jour. A. M. A.*, Nov. 3, 1906).—The subject may be divided into three heads, hygiene and climatic, local treatment and surgery. Early cases are sometimes best treated by change of climate; the principal objects to be attained are avoidance of a new infection and putting the patient in the best possible physical state so as to develop her reparative power. In order to accomplish this end the following rules are imperative: Permanent exposure to fresh air, free access to light, well-regulated rest, careful exercise, abundant nourishment, absolute obedience to the rules of hygiene and constant medical supervision. If a patient has means and time, this is the best treatment to begin with. Cures have been recorded. Patients who are suffering great pain demand immediate relief. A purely hygienic course of treatment is also recommended in those cases of very advanced urinary tuberculosis in which the whole urinary tract has been invaded and both kidneys are diseased. In the first stage of vesical tuberculosis in which the urinary tubercles have not yet appeared and the only abnormality seen with the cystoscope are collections of bright red patches in which the tubercles are later to appear, topical treatment does not do any good. On the contrary, injections of various kinds, and local applications, are intolerably painful, and can do no good, for the reason that they do not reach the site of the trouble, the germs being embedded in the tissue of the bladder, and beyond the reach of antiseptics. Large amounts of water and milk should be taken, and urotropin may be tried. In these stages of the disease, a climatic change will do the greatest amount of good. Avoidance of all kinds of work is insisted upon, rest in the recumbent position, sleeping out of doors, regulated diet are advised; and in every other way the patient should try to lead as careful a life as possible. In the second stage, that of tubercle formation with attendant caseation and ulcer formation,

a vast amount of good can be accomplished by intelligent treatment. Corrosive sublimate and nitrate of silver are strong antiseptics and have a positive curative action on both the tubercle and the ulcer. Used in conjunction, they sometimes eradicate the disease from an apparently incurable bladder. The treatment by the use of corrosive sublimate which was first advocated by Guyon, consists of instillations of the drug every day, or, if not daily, as often as the patient can support them. A solution of 1 to 5,000 is first tried, 30 or 40 drops being instilled into the bladder very slowly. If greater amounts are injected, severe pain will be produced. As toleration of the drug is attained, the strength is increased until a solution 1 to 500 is used. It is not well to use stronger solutions. If the pain is great a solution of cocaine, or eucaine, may be injected into the bladder before the sublimate is used. Hygienic rules as to mode of life should be used, rest especially being insisted upon. Morphine should be avoided, if possible. The treatment has to be kept up for months before any decided improvement is noticed. At the same time, with the Guyon treatment, the tuberculous ulcers will have to be treated with nitrate of silver. This is best done by applying the silver to the diseased surface under cocaine anesthesia. The author reports five cases treated by this method, in which two cures were effected, the other three being much relieved. Should the Guyon treatment fail on account of the suffering it may entail, it is not well to delay in giving the relief which a cystotomy will afford.

OBSTETRICS AND GYNECOLOGY.

IN CHARGE OF

HUGO EHRENFEST, M. D.

PASSAGE OF THE ANTHRAX BACILLUS FROM MOTHER TO FETUS.—Santi Sirena (*Arch. p. le Sc. Med. Rev. Am. Jour. of Obst.*, Sept., 1906).—The bacillus of anthrax in pregnant rabbits has been observed to pass into the amniotic fluid and into the fetus itself. Alterations are produced in the chorion and in the uterus itself, and consist in hyperemia, a dilatation of the vessels, extravasation of blood and infiltration. The placenta contains a large number of bacilli within the veins of the serotina and in the intervillous spaces. It has been shown that the bacilli pass from the mother to the fetus by way of the placental vessels.

TRANSMISSION OF MATERNAL DISEASES TO ONLY ONE OF THE FETI IN CASES OF TWIN-PREGNANCY.—Bertino (*Rassegna d' ost. gin. rev. Zentralbl. f. Gyn.*, No. 39, 1906).—In cases of bi-ovular twin-pregnancy a disease of the mother may be transmitted to but one fetus, or may affect both feti to a very different degree. Reports of such observations are comparatively rare. The writer found six reports of this peculiar form of intrauterine infection in cases of variola. In one instance one of the feti exhibited the unmistakable symptoms of the disease, while the mother herself had escaped the infection. Similar observations have been made in cases of maternal syphilis. A new case of this sort is described by the

writer. Both twins when born apparently were healthy. After a few weeks one of them developed the characteristic symptoms of hereditary lues, viz.: Mucous patches, coryza, erythema, etc. The other child remained healthy up to his third year. Since the mother had syphilis, it seems justifiable to assume that the one fetus had his infection acquired before birth. If the other child later in life should develop symptoms of a hereditary syphilis—which is possible—then certainly the difference in the infection of both feti is remarkable. An explanation for this phenomenon could be found in a different permeability of the two placentas for the syphilitic virus, or in a difference of immunity of the two feti against the infection.

FEVER, SEPSIS AND INFECTIOUS DISEASES APPEARING DURING MENSTRUATION.—Riebold (*Deutsche Med. Wochenschr.*, No. 29, 1906).—In the writer's opinion menstruation plays an important role in the etiology of various febrile diseases. The menstruating uterus seems to present a suitable ground for the growth of pathogenic germs which then enter the system and lead to septic processes. Bacterial toxins, or the products of decomposition resorbed from the uterus, may cause an elevation of temperature which is not by any means uncommon during menstruation. Infections and intoxications originating from the menstruating uterus may cause different forms of rheumatic affections. In the opinion of the writer such affections may be the unrecognized cause of secondary valvular lesions of the heart. In these cases of rheumatic affections the symptoms disappear with the cessation of menstruation and recurrence of the symptoms with every menstruation can be effectively prevented by a regular douching of the vagina twice a day with an antiseptic fluid during menstruation. The most effective measure in the prevention of these infections is scrupulous cleanliness of the external genitalia during menstruation.

CONTRAINDICATIONS AGAINST BREAST FEEDING.—Bouquet (*Bull. gen. de ther. rev. Zentralbl. f. Gyn.*, No. 35, 1906).—According to the experience of the author every mother who suffers from a cardiac lesion, even if it is completely compensated, should be prohibited from nursing her baby. The same is true for mothers who have an albuminuria caused by nephritis. One of the most important contra-indications is tuberculosis. The resistance of the nursing mother is reduced and the child is in danger of receiving with the milk either tubercle bacilli, or at least tubercular toxins. Breast feeding must be stopped in cases of acute infectious diseases of the mother, such as typhus, erysipelas or measles. The necessity of a discontinuation is obvious in cases of lymphangitis, abscess formation or malignant tumors in the breast. It is more difficult to decide on the advisability of breast feeding in cases of chronic intoxications. Alcoholic mothers seem to transmit through the milk substances which become responsible for disturbances of the intestinal tract or the nervous system. This deleterious effect upon the nursing child is more pronounced in chronic trade poisoning, e. g., with mercury, lead or arsenic. In another group of cases nursing must be discontinued on account of persistent anomalies in the chemical constitution of the milk.

BILATERAL METASTATIC CARCINOMATA OF THE OVARIES.—Stickel (*Arch. fuer Gynaekologie*, Bd. 79, H. 3).—Out of a total of 13 cases of this sort the primary tumor was located in the stomach nine times, in the ascending colon one, and in the breasts three times. In all cases of carcinoma of the breast, stomach, gallbladder or intestines, the ovaries must be palpated carefully before a radical operation is decided upon. Metastases in the ovaries may be detected before enlarged lymphglands in the abdomen can be palpated, and even while the abdominal cavity otherwise is still free from metastases.

PEDIATRICS.

IN CHARGE OF

ALFRED FRIEDLANDER, M. D.

DIABETES MELLITUS IN CHILDHOOD.—Brand (*Inaug. Diss., Der Kinderarzt*, Aug., 1906) reviews the cases, 45 in number, that have been reported in the literature since 1899, and then adds a study of 10 cases from Heubner's clinic in Berlin. Finally there is added the history of a rapidly fatal case, in a girl of $2\frac{1}{2}$ years, following a severe burn. In these 56 cases, there was a definite history of heredity in 18 per cent. Of these 56 cases, 46 were fatal (83 per cent). The author believes as the result of his study of two cases followed in the polyclinic, that improvement lasting for long periods of time is possible in some cases, perhaps even definite cures. This would agree with Naunyn's view that there is an intermittent form of diabetes in childhood. In the two cases mentioned, there was absence of sugar in the urine for more than a year. Eighteen of the cases occurred in children under one year of age, the youngest child being only three months old. In infants, however, great care is necessary in diagnosis, because recent researches have shown that in certain disturbances of nutrition, reducing substances of various kinds may appear in the urine. These substances are not grape sugar but milk sugar or galactose. These forms of glycosuria are purely alimentary, and are found in certain forms of gastro-intestinal disease. It is therefore necessary to determine that the sugar excreted is actually grape sugar before the diagnosis of diabetes may be made.

With reference to the diabetic coma, an important point in addition to the clinical picture is the presence of so-called coma casts; thick, short, partly hyaline, partly granular, casts which may cover the whole microscopic field. In the author's experience coma was appallingly rapid in its fatal course, though its onset is often delayed for considerable periods. Cases lasting longer than three years in childhood are extremely rare. Acute infectious diseases occurring in the course of a diabetes are very apt to produce diabetic coma.

With reference to therapy, the best results were obtained in Heubner's clinic through the use of buttermilk and oatmeal.

THE RELATION OF WEIGHT TO THE MEASUREMENTS OF CHILDREN DURING THE FIRST YEAR.—Fleischner (*Arch. of Ped.*, Oct., 1906) carefully

weighed and measured 500 children, all under a year old, with the idea of determining what relation, if any, exists between the weight and measurements of abnormal children as compared with normal babies. Five per cent of the children were well nourished, 35 per cent fairly well nourished, and 40 per cent poorly nourished. His conclusions are summarized as follows:

(1) The height and circumference of head, chest and abdomen in normal, well nourished children increase as the weight, the greatest increase in the measurements occurring during the first quarter of the year, when the greatest gain in the weight takes place; the next greatest increase in the measurements occurs, coincident with the gain in the weight, during the second quarter of the year, while the least increase in the measurements takes place in that part of the year when the gain in the weight is least, the third quarter of the year.

(2) The height, and the circumference of the head and chest in fairly well nourished children likewise increase primarily as the weight, although, in this class of patients, age plays more of a part than in the well nourished. The greatest increase in measurements occurs in the first quarter of the year, with a similar gain in the weight. The increase in the height, and circumference of the head is slightly greater in the third quarter than in the second quarter, although the gain in weight during these periods is the same, showing the slight bearing that age, irrespective of weight, has on the growth of the body, while the smallest gain in the weight and the growth is in the last quarter of the year.

(3) It is in the poorly nourished children that age plays its most important part, and the measurements of these children, compared with the well nourished, increase most rapidly in the last part of the year.

(4) In the poorly nourished children, most of whom are probably somewhat premature, when the weight is below normal, all the measurements are correspondingly below normal. The height and circumference of the head reach the normal birth measurements a little ahead of the weight, while the chest and abdomen are two months later in reaching the measurements of a normal child at birth.

(5) When the weight is stationary the increase in the measurements is very small, depending upon the slight influence which age has upon the growth of the infant, notwithstanding the weight.

(6) The measurements of infants of the same weight, notwithstanding the age, are very similar, the small difference depending, as when the weight of a child is stationary, upon the very slight influence of age upon growth.

(7) The final conclusion can be drawn that during the first year of life the primary factor in the increase of the measurements of the body is steady, consistent increase in the weight, the influence of age being secondary and much less important.

THE BACTERIOLOGY OF INFANTILE DYSENTERY.—Auche and Campana (*Arch. de Med. des Enf.*, Sept. and Oct., 1906) after a careful experimental and clinical study, reach the following conclusions: Dysentery, in children as in adults, is caused by several types of the dysentery bacillus, the type of Chantemesse-Widal-Shiga, the type of Flexner, and the type of Strong. The clinical characters of these various forms of

dysentery differ very little, and are not sufficiently well marked to allow us to establish clinical types to correspond to the bacteriological ones. For the present, the only means of determining the nature of a dysentery are these: The finding of the bacilli in the stools, and their identification, and the proof, much less sure, but much more easy to carry out, by means of agglutination.

TUBERCULOUS CAVITIES IN THE NURSING.—Lhomme (*These de Paris*, 1906; *Rev. Mens. des Niol de l'Enf*) says that tuberculous cavities are very rare before the age of three months. They are most often unilateral and situated on the right side. They are more common at the base or in the middle lobe, than at the apex. Three types occur: (1) Resulting from caseous pneumonia. (2) Suppuration of a group of bronchopneumonic lesions. (3) Extension of chronic tubercular lesions more or less surrounded by sclerotic tissue.

Sometimes they are single and of large dimensions; more often they are small but numerous.

The physical signs are often wanting. At times the physical signs of cavity are present without the existence of such cavity. The symptoms are also frequently lacking; the only one of distinct value is hemoptysis.

NEUROLOGY.

IN CHARGE OF

SIDNEY I. SCHWAB, M. D.

THE THEORY OF LUES NERVOSA.—Hubner (*Berl. Llin. Woch.*, 45, 1906).—This paper contains an interesting discussion of the two opposing theories of the effort to explain the close relation existing between lues on the one hand and tabes and paresis on the other. On one side is the assumption that there must exist besides the syphilis certain other causes which produce the affections which we know as nerve syphilis, and the other hold that there exists a peculiar sort of syphilitic affection which has a predilection for the nervous system. This infection is called lues nervosa. The standpoint of this paper is that it is at present unnecessary to assume a special form of syphilitic infection which shows a tendency to attack the nervous system. Two cases are quoted in the first instance which showed, post mortem, that syphilis of the internal organs could exist at the same time with outspoken diseased condition of the nervous system, both being essentially syphilitic. From a clinical point of view the author comes to the same conclusion and as a final declaration he says that at present there is no need to assume that there is a special lues nervosa type of infection.

THE PAIN REACTION OF THE PUPILS AS DIFFERENTIAL DIAGNOSTIC POINT BETWEEN ORGANIC AND PSYCHOGENIC AREAS OF SENSITIVENESS.—Lowy (*Neurologisches Centralblatt*, 20, 1906).—As a result of a long period of observation, the author believes that he has established the following important differential diagnostic principle. If pressure is applied

to painful areas due to organic causes the pupils in a strong light will show a widening from their previous small diameter. This same phenomenon does not result if the painful points are due to psychogenic causes. The author thinks that this is a very valuable point and he calls particular attention to the possibility of its being used in appendicitis, for example, when the pain over the appendical region might be due to psychogenic causes.

THE CEREBRAL ELEMENT IN THE REFLEXES AND ITS RELATION TO THE SPINAL ELEMENT.—Walton Paul (*Journal Nerv. Ment. Dis.*, Nov., 1906).—The purpose of this paper, based upon considerable clinical study, is to offer proof that the brain has an active part in the regulation of the reflexes. The conclusions are as follows: The deep reflexes are resultant of the activity of cerebral and spinal arcs, the longer arcs tending to produce a deliberate and moderate reflex, the shorter arcs an active and violent reflex. The deep reflex varies in healthy individuals and in the neuropsychoses according to the predominant influence of the longer or shorter arcs. In disease of organic origin the partial withdrawal of the higher influence causes the spinal type of deep reflex, but the complete withdrawal of the higher influence causes abolition of the deep reflexes, since the spinal alone is incapable in man of sustaining the burden. Upon re-establishment of the higher influence the reflexes return, the spinal type predominating if the re-establishment is partial, the normal type if it is complete. Initial lessening or loss of deep reflexes in the paralyzed parts is the rule in apoplexies. The condition persists for a period varying from half an hour to a number of days, after which these reflexes become normal or assume the spinal or exaggerated type, according as the return of cerebral influence has been complete or partial. In the exceptional cases of apoplexy with initial exaggeration of deep reflexes, the withdrawal of cerebral influence has been from the first incomplete. The superficial reflexes, like the deep, have a cerebral control and disappear on the withdrawal of that control. The fact that they do not become exaggerated in disease of the pyramidal tract shows that they have little if any spinal representation. The control of the Babinski reflex more nearly approximates that of the deep than that of the superficial reflexes.

MYATONIA CONGENITA.—Rosenberg (*Deutsch Zeitschrift f. Nervenheilkunde*, 31, Vol. 1-2).—Since Oppenheim first described this affection in the latest edition of his text book, there has been a great deal of interest aroused by it among neurologists and pediatricians. The most characteristic symptom is a hypotonia or atonia of the muscles with a complete failure, or a marked weakness of the tendon reflexes. The case here described is a typical one from Oppenheim's clinic. The case was that of a typical paraplegia, flaccid in type. The child made a good recovery under the use of the faradic current. There is contained in the article a complete analysis of the recorded cases up to date, so that the paper is a valuable contribution from the point of view of bibliography. The pathology of this disease is to be found probably in a congenitally delayed development of the muscular system. The recorded case of Spiller which contains the post-mortem report of a case, seems to support this view, which is upheld likewise by Oppenheim.

OPHTHALMOLOGY.

IN CHARGE OF

JOHN GREEN, JR., M. D.

RELATIONS OF THE SUPERIOR AND INFERIOR RECTI MUSCLES TO CONVERGENT SQUINT.—Jackson (*Read in the Ophthalmic Section, Am. Med. Assn.*, June, 1906).—As the eye is turned inward the power of the primary adductor, the internus, diminishes. But the superior and inferior recti, attached in front of the centre of rotation of the eyeball, have their insertions carried inward so that they gain more and more power to turn the eye in or hold it in convergence. This makes these muscles, or rather their nasal portions, of great importance in convergent strabismus. A case reported illustrated the permanence of results obtained by extended tenotomy. The primary adductor and abductor, the internus and externus, tend to equilibrium with the eye directed forward. The secondary adductors, the superior and inferior recti and the secondary abductors and obliques, tend to turn the eye ever more strongly in or out. A rational operation to correct excessive convergence must tend to lessen the relative influence of the secondary adductors.

BACTERIOLOGICAL EXAMINATIONS OF THE CONJUNCTIVAL SAC IN TYPHOID FEVER AND PNEUMONIA.—Randolph (*Bull. of the Johns Hopkins Hospital*, October, 1906).—The wide distribution of the typhoid bacillus throughout the body suggests the possibility of the occasional appearance of this bacillus in the conjunctival sac, especially as conjunctivitis is a recognized complication of typhoid fever. Although rare in contrast to otitis media, conjunctivitis is not an uncommon complication of acute pneumonia.

Of 100 cases of typhoid, *M. albus* was found alone 59 times; associated with other organisms 23 times. In 8 cases *M. aureus* was found alone, while in 13 it was found associated with other bacteria. Other bacteria encountered were the *Streptococcus pyogenes*, the *Morax-Axenfeld diplobacillus*, the *Xerosis bacillus*, *B. pyocyaneus* and *B. subtilis*. Out of the 100 cases the conjunctival sac contained bacteria in 96. The typhoid bacillus was absent throughout.

In the 48 cases of lobar pneumonia *M. albus* was found alone or associated in 38 cases. *M. aureus* occurred 10 times, once alone and 9 times associated with *M. albus*. The *Pneumococcus*, *B. subtilis*, *Morax-Axenfeld diplobacillus*, the *Xerosis bacillus* were the other organisms encountered. Out of the 48 cases the conjunctival sac contained bacteria in 45.

Conclusions. The bacterial flora of the conjunctival sac during typhoid fever and pneumonia shows practically no difference from the conjunctival flora of individuals who are in perfect health.

AUTOINTOXICATION IN RELATION TO THE EYE.—de Schweinitz (*Read in the Ophthalmic Section, Am. Med. Assn.*, June, 1906).—The writer

considered the toxins produced by intestinal decomposition, their relationship to certain diseases of the cornea, sclera and uvea; the possible relationship to amblyopia and retrobulbar neuritis, acute and chronic. He believes that toxins may be accessory causes and the means by which the symptoms are continued even when the well-known exciting cause has ceased to be operative. He alluded to the researches of Dr. Edsall and his own in regard to the relationship of enterogenous decomposition-products to the development and continuance of so-called toxic amblyopia when this is produced by tobacco and alcohol. The probable relationship of auto-intoxication to certain post-operative phenomena, notably post-operative delirium, irido-cyclitis, and glaucoma, was discussed.

THE VALUE OF MIOTICS IN THE TREATMENT OF CHRONIC SIMPLE GLAUCOMA.—Posey (*Read in the Ophthalmic Section, Am. Med. Assn., June, 1906*).—The writer made a strong plea for the continuous and intelligent use of miotics in the treatment of chronic glaucoma and referred to their great value in this class of cases, notwithstanding the generally accepted view of their comparative uselessness. He spoke of the desirability of their continuance in the early stages, even when the diagnosis of glaucoma had been confirmed. He reported a case showing remarkable preservation of vision in an eye the seat of advanced glaucoma, by continuous use of miotics over a period of twelve years. The power of eserine and pilocarpine in chronic glaucoma to preserve the unoperated eye from glaucomatous attacks after iridectomy on its fellow was discussed and the necessity for maintaining the pupils in a state of almost maximum contraction insisted upon. He considered the proper dosage and the best manner of administering both eserine and pilocarpine and the choice between them in various types of cases.

LARYNGOLOGY AND OTOTOLOGY.

IN CHARGE OF

WILLIAM E. SAUER, M. D.

THE RESULTS OBTAINED FROM THE RADICAL OPERATION FOR CHRONIC PURULENT OTITIS MEDIA.—Dench (*Laryngoscope*, Oct., 1906).—Dench says the results obtained by the operation in question may be considered under the following heads: First, the efficiency of the operation in protecting the patient against intracranial suppuration; second, efficiency of the operation in causing a permanent cessation of the otorrhea; third, the immediate and remote effect of the operation upon the function of the organ, and, fourth, the effect upon the integrity of the facial nerve. In a series of 193 cases operated upon, in no case was there any evidence of an intracranial lesion after the suppuration had been relieved. This seems to prove conclusively that the radical operation does protect the patient from the dangerous sequelæ of middle ear suppuration.

Concerning the permanent relief of the otorrhea the results obtained are, perhaps, not so flattering as we had hoped they would be when the

procedure was first suggested. Out of 193 cases there were 131 cures, 29 with slight discharge, 5 with profuse discharge, 2 still under treatment, 6 fatal cases, and 20 cases in which the result was unknown. Leaving out the 20 cases in which the result was unknown, we have 173 cases of which 131 were cured, or a little over 75 per cent. In a later series of 95 cases the cures amounted to exactly 80 per cent.

In those cases operated upon several years ago and followed carefully, the results have been most satisfactory, the discharge in almost every instance having disappeared entirely. In a few cases where the cure had been considered perfect the patients would return at intervals of from three or four months to one or two years, with a discharge from the external meatus; examination would show the entire cavity filled with a mass of desquamated epithelium which, upon being removed, would leave the cavity with a very unhealthy appearance; if, however, the cavity were sterilized with an alcoholic solution of bichloride of mercury and then dusted with boric acid, or some other bland powder, it immediately became dry. These attacks of desquamation should not be looked upon as a recurrence of the otitis as they are readily relieved by the removal of the epithelial detritus and sterilization of the walls of the cavity.

Out of 111 cases in which the hearing records were kept, the hearing after the operation was good in 99 (whispered voice could be heard anywhere from 5 to 15 feet), was fair in 9 (whispered voice heard from 3 to 6 feet), was bad in 3 (worse than before the operation).

If the operator is cautious in his manipulations and is careful neither to dislodge the stapes nor to impact it into the oval window, he can promise the patient almost certainly that the hearing will not be interfered with. In a number of cases under observation, operated upon several years ago, the hearing steadily improved, owing probably to a gradual mobilization of the stapes by sound waves. In those cases, therefore, where no labyrinthine lesion exists, and where there is a moderate impairment of hearing prior to the operation, the hearing is more apt to be improved than impaired by the surgical procedure.

Out of the last 95 cases operated upon by Dench, facial paralysis occurred in four cases, and in every case the function of the facial was restored. In the previous series of 193 cases the proportion was about the same. When the facial paralysis comes on two or three days after the operation the function is usually restored in two or three weeks, but in those cases where the paralysis comes on immediately after the operation the period of recovery is much greater—from six to eight months, or even longer.

Where facial paralysis does occur it is best treated by daily applications of either the galvanic or faradic current, the galvanism being used where the muscles do not react to the faradic current. In addition to the use of electricity the administration of strychnia internally seems to hasten the restoration of function.

THE RADICAL MASTOID OPERATION MODIFIED TO ALLOW THE PRESERVATION OF NORMAL HEARING.—Bryant (*N. Y. Med. Journ.*, Oct. 20, 1906).—The operation applies to those cases in which the hearing was good up to a short time before operating. These are usually cases of

acute extensive involvement of the temporal bone, more rarely cases of otitis media purulenta chronica in which the sound-conducting mechanism has been retained more or less intact. The object in these cases is to remove all the diseased bone and to produce perfect drainage, at the same time preserving the auditory function of the middle ear.

To establish thorough drainage Bryant makes a U-shaped myringotomy to drain the antrum and opens the mastoid antrum to drain the epitympanum. All diseased bone is removed and all the cells of the middle ear system are opened to throw them into one cavity leading to the epitympanum. The outer anterior wall of the antrum is wholly taken away with the exception of enough to support the annulus and adjacent membrana tympani, at the same time protecting the suspensory ligament of the malleus, also the fan-shaped ligament of the incus from injury. By this procedure the upper and back part of the tympanum is drained through the mastoid wound, and the lower anterior part through the meatus without permanent injury to the sound-conducting mechanism.

THE MAXILLARY SINUS OPERATION THAT HAS YIELDED ME THE BEST RESULTS.—Jackson (*Laryngoscope*, Oct., 1906).—The author's method of procedure is as follows: The anterior two-thirds, or all of the middle turbinal, is removed; then the entire inferior turbinal is removed, except a long ridge-like stump. He next enlarges the antral opening all the way down to the floor of the nose, making it of ample size so that it will remain open a long time, if not permanently, affording proper drainage of the antrum. This he considers the most important step in the operation. The naso-antral wall is removed backward to the posterior limit of the antral cavity so as to afford perfect drainage without a "pocket" in dorsal decubitus. With this opening a backward inclination of the head permits complete emptying of the antrum. He next removes sufficient of the anterior wall of the antrum by the buccal route to enable the exploration of the cavity with the finger and the thorough removal of diseased tissue, sparing normal ciliated epithelium, if present. The cavity is irrigated with boric acid every alternate day and repacked through the buccal wound. The cavity is packed with iodoform gauze rinsed in a weak bichloride solution and having plain gauze knotted to the end so that what lies in the mouth will contain no iodoform. When the cavity is seen to be lined with healthy granulations the buccal wound is closed after packing the antrum with iodoform gauze, omitting the plain gauze and plug. This last packing is removed through the nose on the third day. In some cases irrigation through the nose may be necessary for a short time.

BOOK REVIEWS.

PREVALENT DISEASES OF THE EYE. By Samuel Theobald, M. D., Clinical Professor of Ophthalmology and Otology, Johns Hopkins University. Octavo of 551 pages, with 219 text-illustrations and 10 colored plates. Philadelphia and London: W. B. Saunders Company. 1906. Cloth, \$4.50 net; half morocco, \$5.50 net.

It has become the habit of every writer of an ophthalmic text book to adopt as an explanatory subtitle, "Primarily intended for the general practitioner and medical student." How infrequently do text books really subserve the purposes of these two classes of readers is a matter of general knowledge. Whatever may have been the original intention of the author, the end result of his labors is invariably a work for the perusal of his fellow specialists. In such a book the deluded general practitioner will flounder beyond his depth, and, instead of being filled with gratitude to the author who has failed to give him real help in his ophthalmic problems, he is far more likely to regret an ill-spent five-dollar bill and to relegate the book to his highest shelf.

Such being only too sadly the case, it is extremely gratifying to encounter a text book in which the needs of the practitioner and student have been constantly kept in view. Dr. Theobald's subtitle, "A reference handbook especially adapted to the needs of the general practitioner and medical student," is amply justified by the judicious selection and suitable arrangement of material. Bearing in mind the unfamiliarity of these two classes of readers with ophthalmoscopy, the methods of determining errors of refraction, muscular anomalies, etc., little or no stress is laid upon this aspect of the subject, but, on the other hand, ample instruction is given to enable the reader to make distinctions between trivial diseases which may properly be handled by him and the more serious affections urgently calling for the help of a specialist. Dr. Theobald has wisely refrained from describing a multitude of remedies, local and general, but has noted only those which in his experience are most generally applicable to the different conditions described.

The book is written in beautiful English, so that it may be commended from the literary point of view. The illustrations, many of which are in color, are extremely good and serve uncommonly well to elucidate the text.

This book occupies a field of its own, and can be unreservedly commended to students and practitioners.

BEITRAGE ZUR KLINIK DER TUBERCULOSE. Herausgegeben von Dr. Ludolph Brauer. Wuerzburg: A. Stuber's Verlag. 1906.

The first number of Volume VI of this publication has just appeared, and it is devoted to a series of articles by Bandelier, Director of the Pulmonary Sanitarium, Cottbus. They are chiefly devoted to a discussion of the diagnostic and therapeutic value of tuberculin. An abstract of the two articles devoted to the former will be found in our abstract columns under Diagnosis.

A TEXT BOOK OF HUMAN PHYSIOLOGY. By Dr. Robert Tigerstedt. Translated from the Third German Edition and Edited by John R. Murlin, A. M., Ph. D. New York and London: D. Appleton & Co. 1906.

This translation of Prof. Tigerstedt's wonderful text book of physiology will doubtless meet with a warm welcome. Of the many text books written on this subject, none will for a moment compare in charm and interest with the delightful original. It is, however, with some dismay that we find that the translator has cut down the original to the capacity of our American second-year medical students. To this end he has found it necessary to cut

out much of the discussion of the physics of the circulation, of optics and the like. A number of new illustrations of American apparatus are introduced. While not the equal of the original for purposes of reference, the translation will doubtless be useful as a text book in medical schools.

MODERN CLINICAL MEDICINE: Diseases of the Digestive System. Edited by Frank Billings, M. D. Translated under the supervision of Julius L. Salinger, M. D. D. Appleton & Co., New York and London. 1906.

This volume includes articles from many of the most eminent of German clinicians, men such as Rosenheim, Riegel, Ewald, Boas, Oser and the like. It is a translation of the second part of "Die Deutsche Klinik," which, with Nothnagel's series, stands at the head of German clinical publications. The bulk of the volume is naturally devoted to diseases of the stomach and intestine, and most of the remainder to hepatic disorders. A chapter on "Symptomatology of Diseases of the Pancreas," by L. Oser, of Vienna, covers this subject adequately, and two chapters on perityphlitis set forth the German views on this subject. The translation is well done, and the series can be unreservedly commended to our readers.

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